NORTH CAROLINA

Medical Journal

Vol. 21 No. 11
November, 1960

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PANEL DISCUSSION ON DIALYSIS

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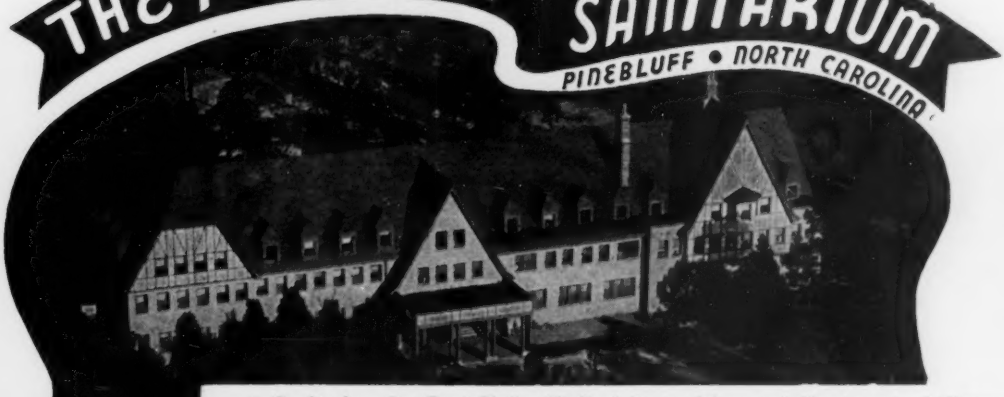

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NORTH CAROLINA MEDICAL JOURNAL

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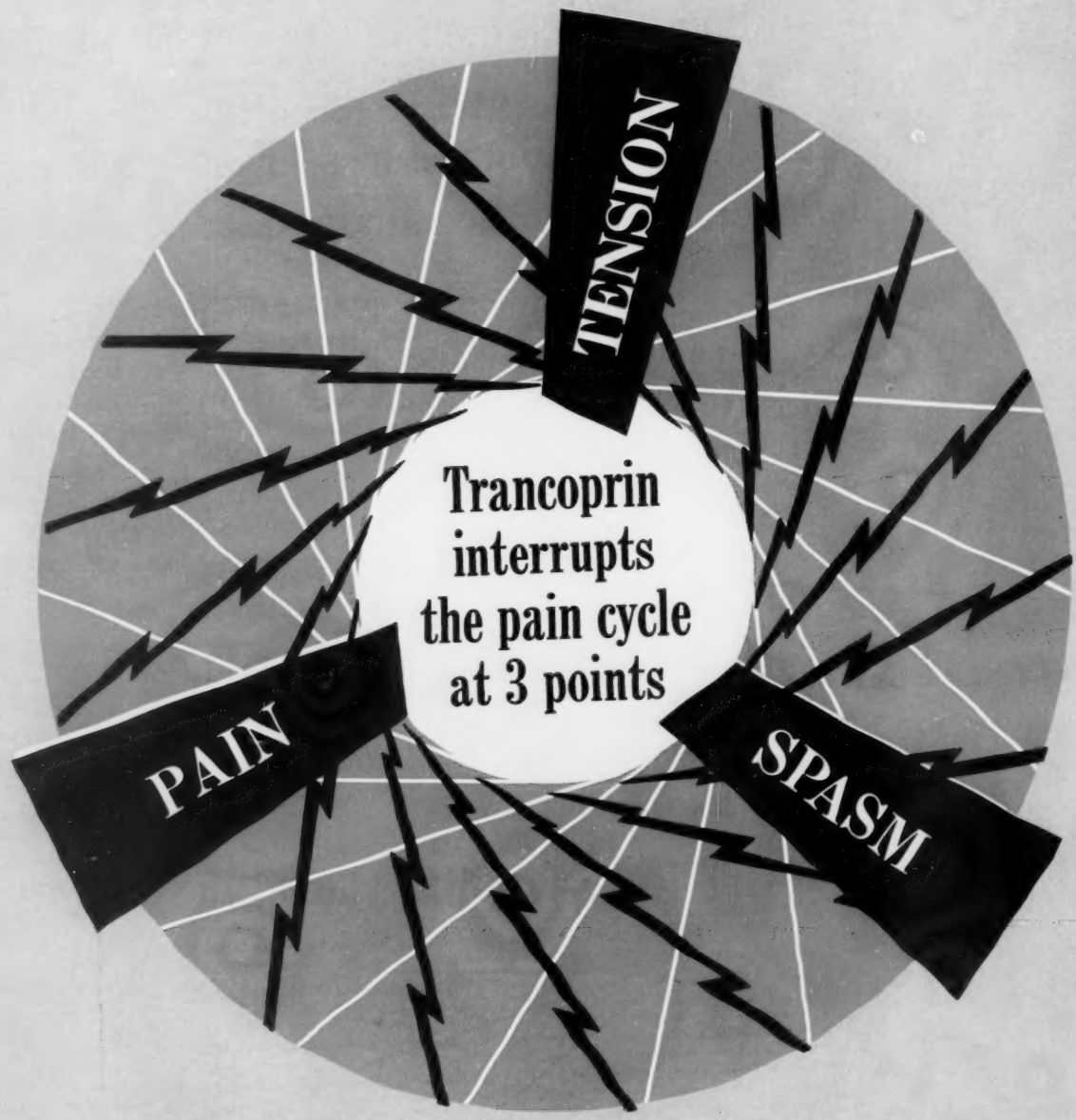

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References: 1. DeNyse, D. L.: *M. Times* 87:1512, Nov., 1959. 2. Ganz, S. E.: *J. Indiana M. A.* 52:1134, July, 1959. 3. Gruenberg, Friedrich: *Current Therap. Res.* 2:1, Jan., 1960. 4. Kearney, R. D.: *Current Therap. Res.* 2:127, April, 1960. 5. Lichtman, A. L.: *Kentucky Acad. Gen. Pract. J.* 4:28, Oct., 1958. 6. Mullin, W. G., and Epifano, Leonard: *Am. Pract. & Digest Treat.* 10:1743, Oct., 1959. 7. Shanaphy, J. F.: *Current Therap. Res.* 1:59, Oct., 1959. 8. Collective Study, Department of Medical Research, Winthrop Laboratories. 9. Hergesheimer, L. H.: An evaluation of a muscle relaxant (Trancopal) alone and with aspirin (Trancoprin) in an industrial medical practice, to be submitted.

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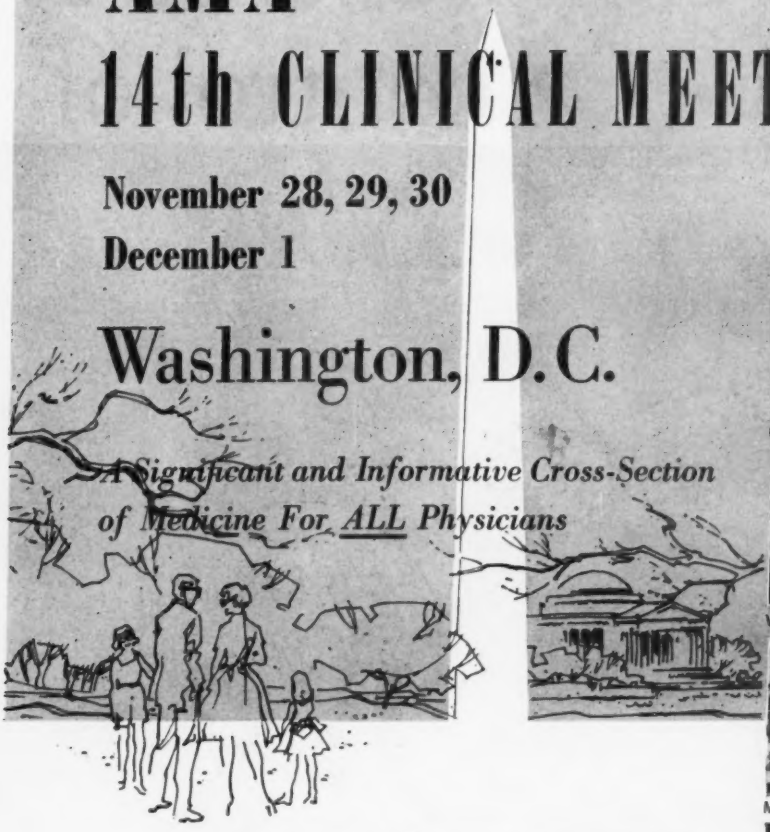

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INDICATIONS

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or associated with
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a new muscle relaxant-analgesic

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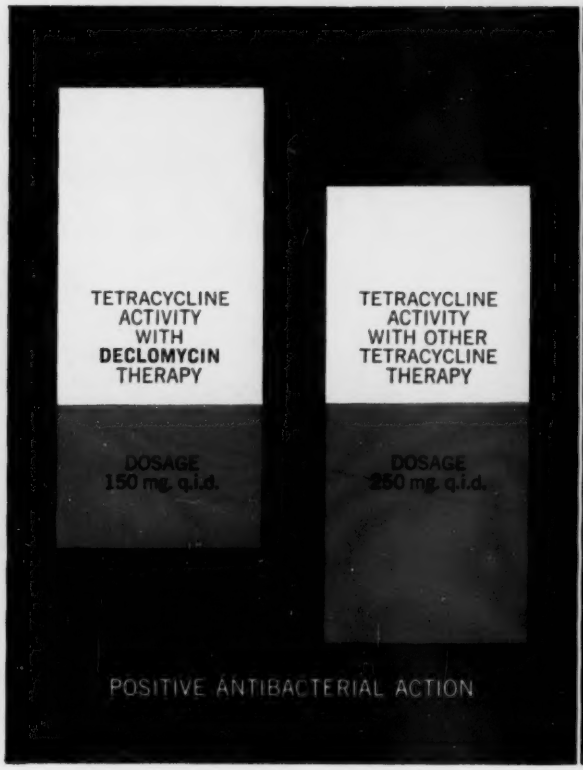
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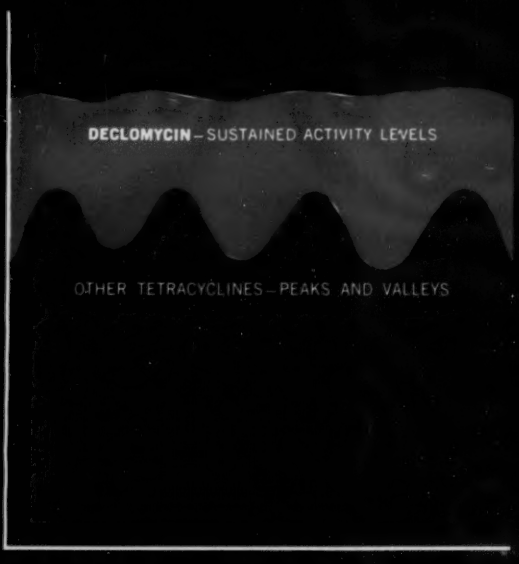

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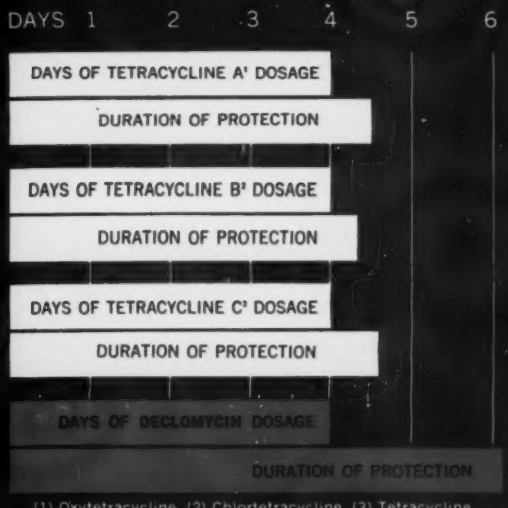
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DURATION OF PROTECTION
DAYS OF TETRACYCLINE B² DOSAGE
DURATION OF PROTECTION
DAYS OF TETRACYCLINE C³ DOSAGE
DURATION OF PROTECTION
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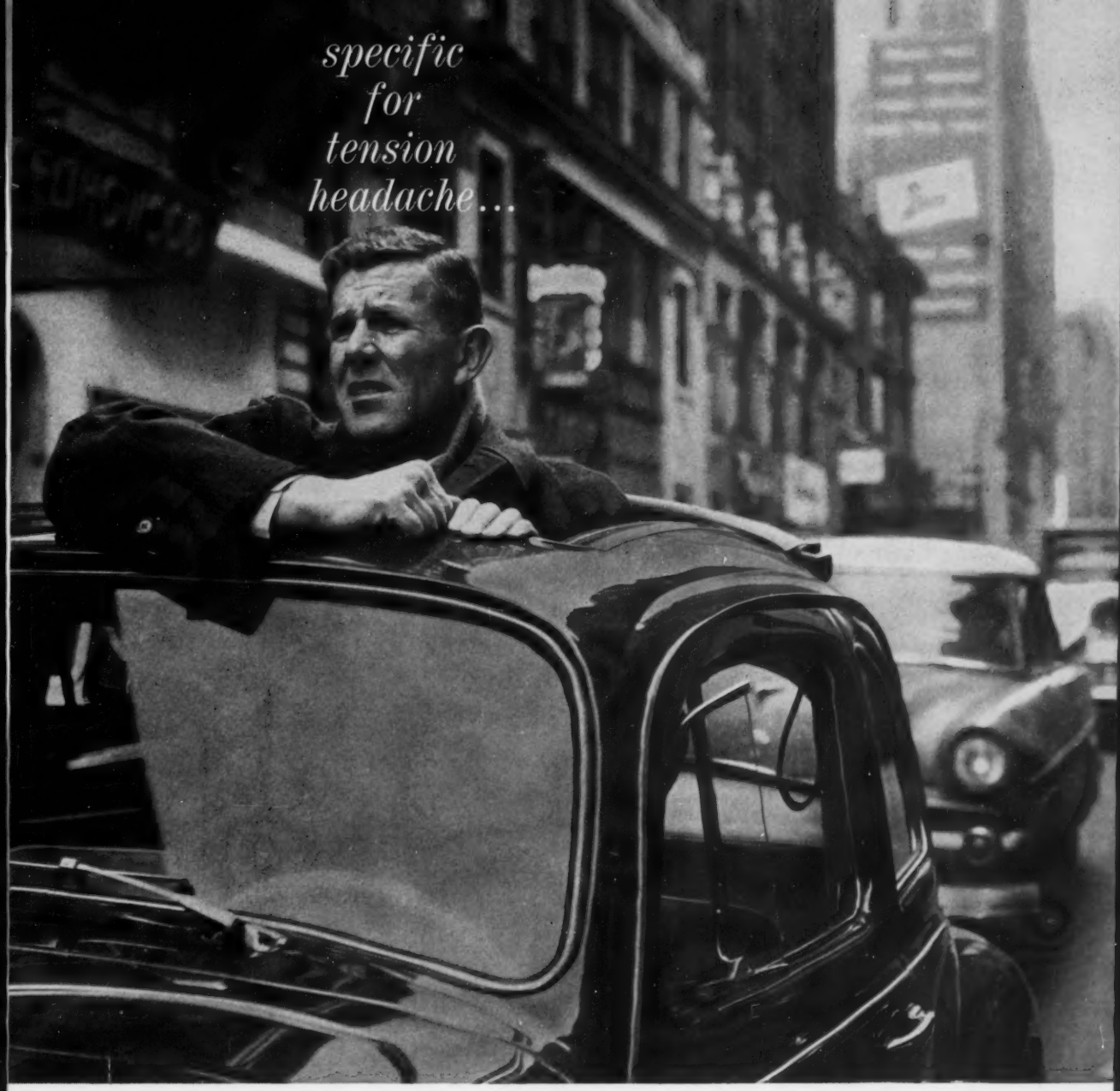

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"We have found caffeine, used in combination with acetylsalicylic acid, acetophenetidin, and isobutylallylbarbituric acid, [Fiorinal] to be one of the most effective medicaments for the symptomatic treatment of headache due to tension."

Friedman, A. P., and Merritt, H. H.: J.A.M.A. *163*:1111 (Mar. 30) 1957.

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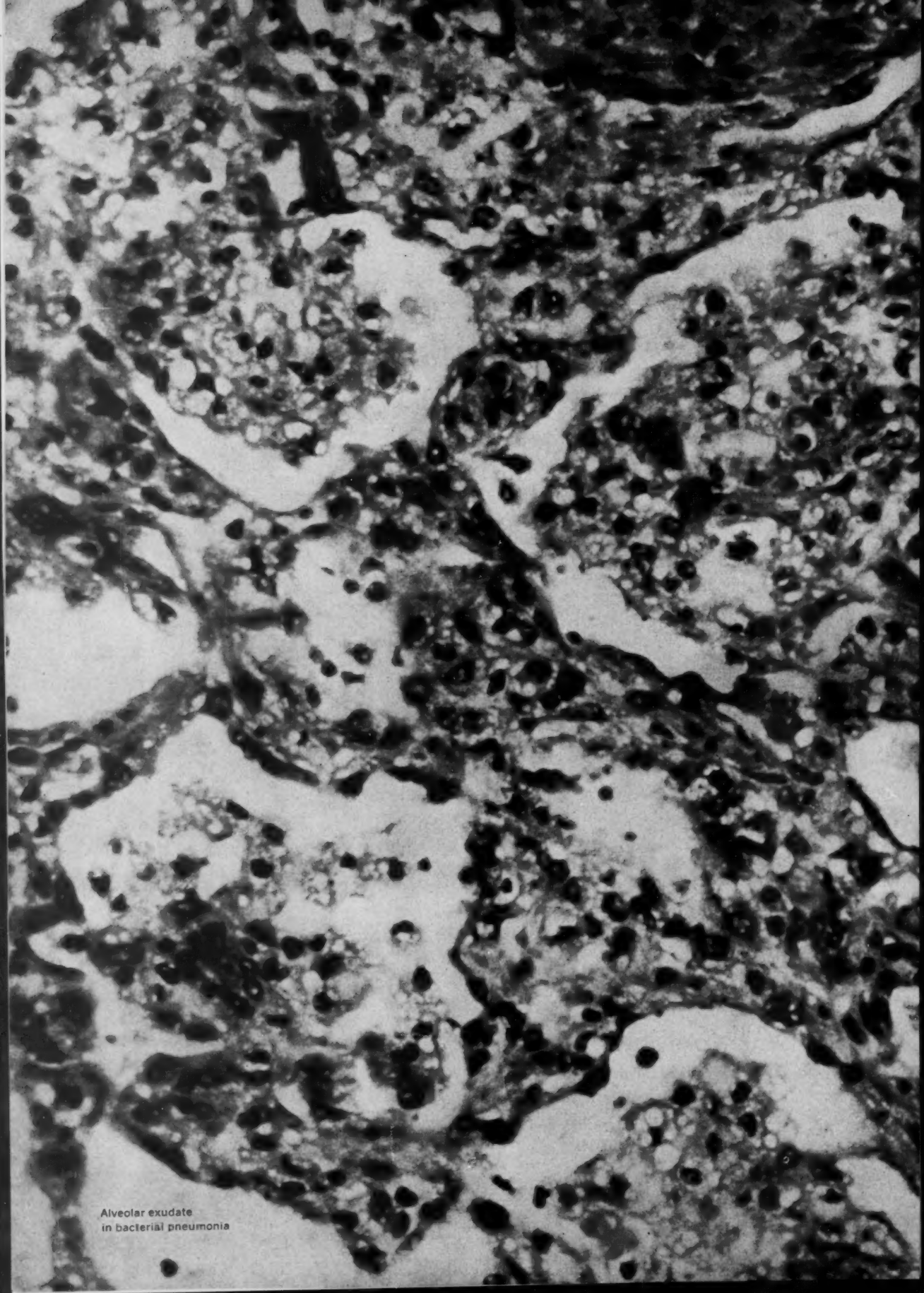
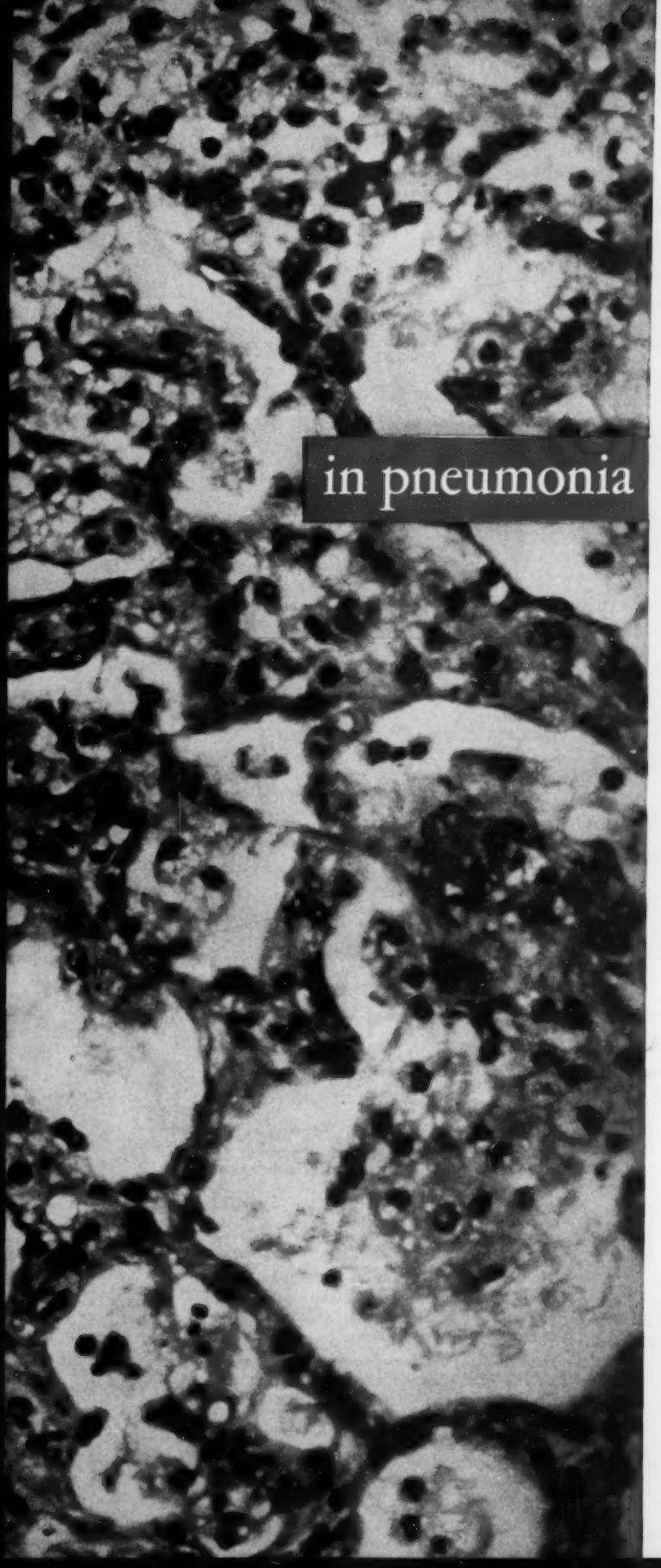
Dosage: 1 or 2 every four hours, according to need, up to 6 per day.

SANDOZ



Alveolar exudate
in bacterial pneumonia



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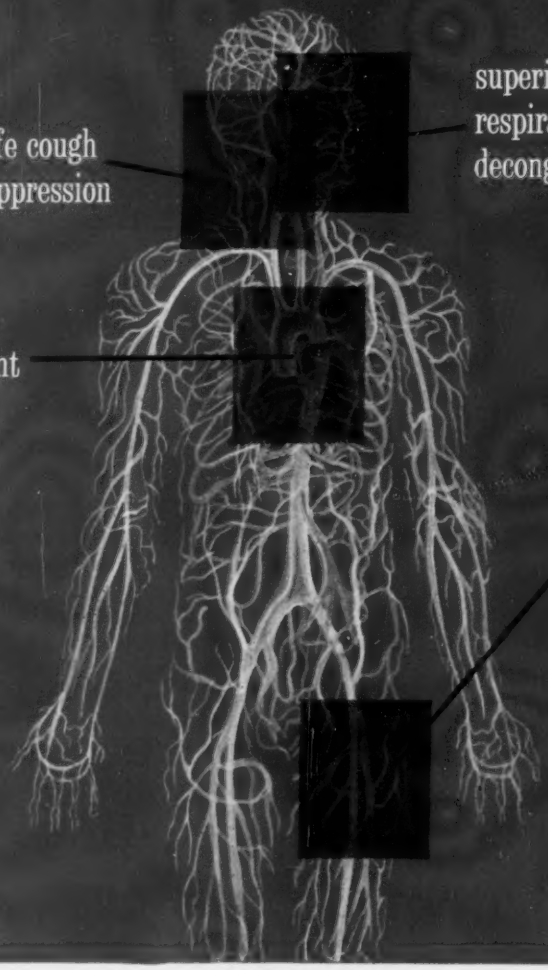

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timed-release tablets/suspension

Each Tussagesic timed-release Tablet provides:

TRIAMINIC®	50 mg.
DORMETHAN (brand of dextromethorphan HBr)	30 mg.
TERPIN HYDRATE	180 mg.
APAP (acetaminophen)	325 mg.

Dosage: *Adults and children over 12* – one tablet in the morning, midafternoon and at bedtime. Each tablet should be swallowed whole to preserve the timed-release action.

Each tsp. (5 ml.) of Tussagesic Suspension provides:

TRIAMINIC®	25 mg.
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TERPIN HYDRATE	90 mg.
APAP (acetaminophen)	120 mg.

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Aristocort

Triamcinolone has long since proved its unsurpassed efficacy and relative safety in the therapy of *rheumatoid arthritis, inflammatory and allergic dermatoses, bronchial asthma,* and all other conditions in which corticosteroids are indicated. But ARISTOCORT has also opened up new areas of therapy for selected patients who otherwise could not be given corticosteroids. Medicine is now in an era of "special-purpose" steroids.[1]

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Hollander[1] points out the superiority of triamcinolone in not causing mental stimulation, increased appetite and weight gain, compared to other steroids which produce these effects in varying degrees. And McGavack,[2] in a comparative tabulation of steroid side effects, indicates that triamcinolone does not produce the increased appetite, insomnia, and psychic disturbances associated with other newer steroids.

ARISTOCORT can thus be advantageous for patients requiring corticosteroids whose appetites should not be stimulated, and for those who are already overweight or should not gain weight. Likewise, ARISTOCORT is suitable for the many patients with emotional and nervous disorders who should not be subjected to psychic stimulation. Furthermore, ARISTOCORT Triamcinolone, in effective doses, showed a low incidence of side reactions and is a steroid of choice for treating the older patient in whom salt and water retention may cause serious damage.[2]

References: 1. Hollander, J. L.: *J.A.M.A.* 172:306 (Jan. 23) 1960. 2. McGavack, T. H.: *Nebraska M. J.* 44:377 (Aug.) 1959. 3. McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 (Dec.) 1958.

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. Dosage should be individualized and kept at the lowest level needed to control symptoms. It should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

Supplied: Scored tablets—1 mg. (yellow); 2 mg. (pink); 4 mg. (white); 16 mg. (white).

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can help control serum cholesterol

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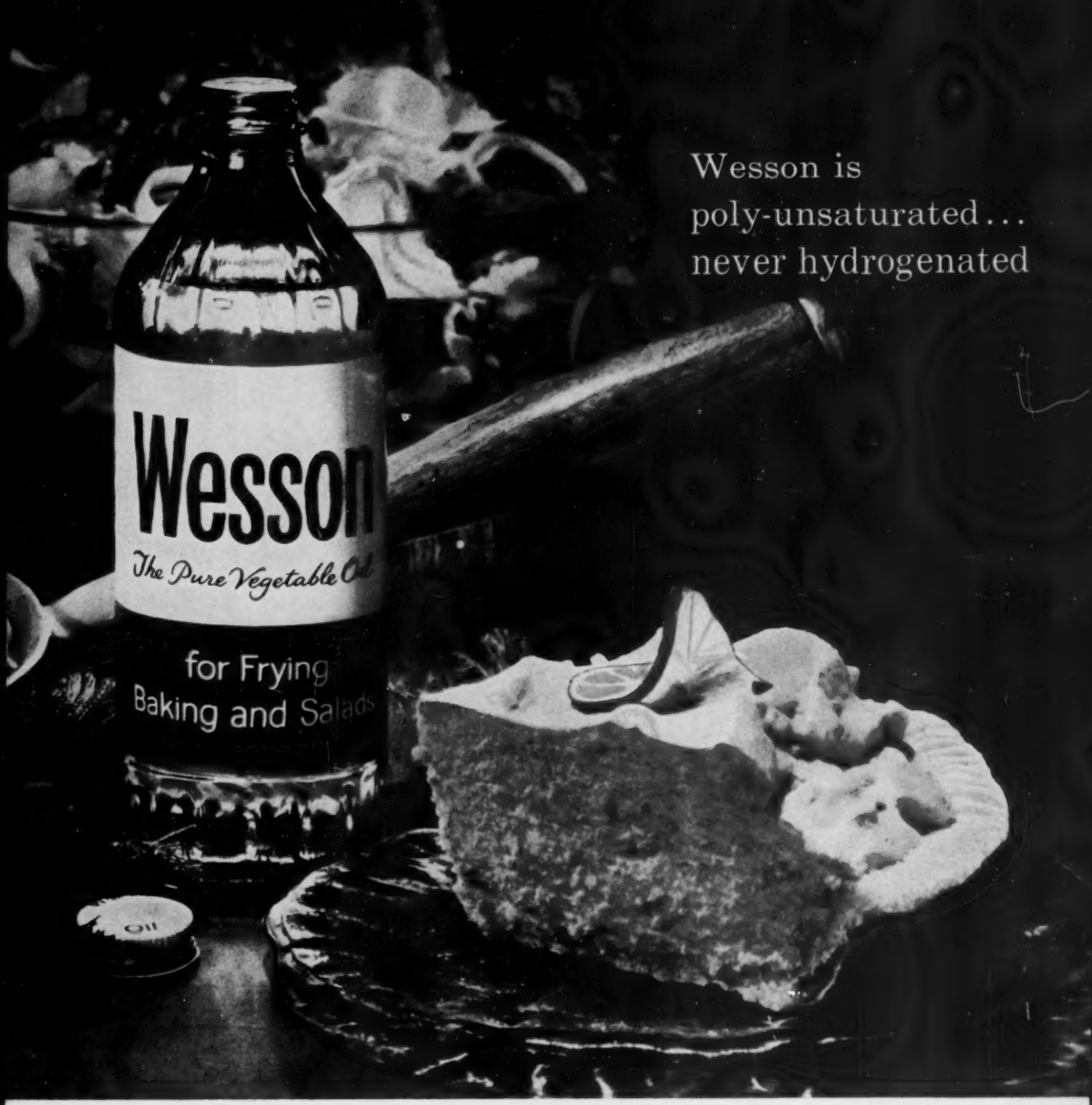
Uniformity you can depend on. Wesson has a poly-unsaturated content better than 50%. Only the lightest cottonseed oils of high iodine number are selected for Wesson and no significant variations in standards are permitted in the 22 exacting specifications required before bottling.

Wesson satisfies the most exacting appetites. To be effective, a diet must be *eaten* by the patient.



The majority of housewives prefer Wesson particularly by the criteria of odor, flavor (blandness) and lightness of color. (Substantiated by sales leadership for 59 years and reconfirmed by recent tests against the next leading brand with brand identification removed, among a national probability sample.)

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Total unsaturated	70-75%
Palmitic, stearic and myristic glycerides (saturated)	25-30%
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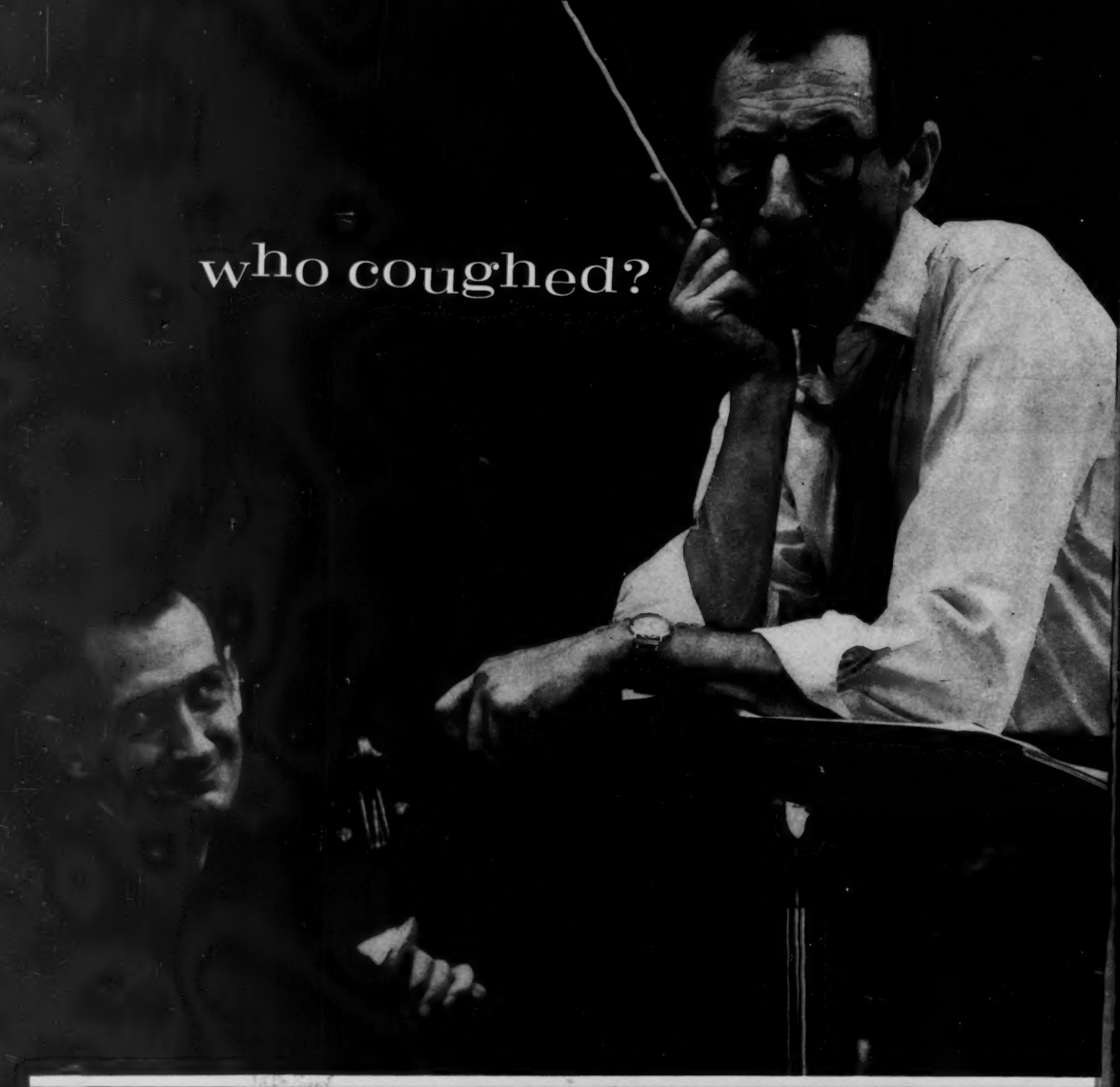
Free Wesson recipes for delicious main dishes, desserts and salad dressings are available for your patients. Request quantity needed from The Wesson People, Dept. N, 210 Baronne St., New Orleans 12, La.



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THE COMPLETE Rx FOR COUGH CONTROL

cough sedative | antihistamine
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▪ relieves cough and associated symptoms in 15-20 minutes ▪ effective for 6 hours or longer ▪ promotes expectoration ▪ rarely constipates ▪ agreeably cherry-flavored

Each teaspoonful (5 cc.) of HYCOMINE** Syrup contains:

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Dihydrocodeinone Bitartrate (Warning: May be habit-forming)	5 mg.	6.5 mg.
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Average adult dose: One teaspoonful after meals and at bedtime. May be habit-forming. Federal law permits oral prescription.

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The action of neo Bromth is not limited merely to control of abnormal water retention, or of nervousness, or of pain—or any other single or several of the multiple manifestations characteristic of premenstrual tension. neo Bromth effectively controls the *whole* syndrome.

neo Bromth is also completely free from the undesirable side effects associated with such limited-action therapy as ammonium chloride, hormones, tranquilizers and potent diuretics. neo Bromth has continued to prove to be the safest—as well as the most effective—treatment for premenstrual tension.

Each 80 mg. tablet contains 50 mg. Pamabrom, and 30 mg. pyrilamine maleate. Dosage is 2 tablets twice daily (morning and night) beginning 5 to 7 days before menstruation. Discontinue when the flow starts.

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benzthiazide

NaClex®

a new molecule with an unsurpassed faculty for salt excretion

A. H. Robins announces NaClex, a potent, oral, nonmercurial diuretic. NaClex is a new molecule, designated benzthiazide. Its unique chemical structure produces a "pronounced increase in diuretic potency"[1] over many older diuretics. NaClex also has antihypertensive properties, and it enhances the activity of other antihypertensive drugs.

in diuresis

salt removal is still the fundamental objective

As salt goes, so goes edema

A fundamental principle of diuresis is that "increased urine volume and loss of body weight are proportional to and the osmotic consequences of loss of ions."[2] New NaClex helps reduce edema through the application of this basic principle.

Apparently functioning in the proximal renal tubules, NaClex strictly limits the reabsorption of sodium and chloride ions. To maintain the essential, subtle balance between salt and water, the body's homeostatic mechanism reponds to this loss of ions by allowing an increased excretion of excessive extracellular water. Thus the NaClex-induced removal of salt leads directly to the reduction of edema.

How potent is benzthiazide?
Compared tablet for tablet with oral diuretics now available, NaClex is unsurpassed in potency. Milligram for milligram, it has achieved optimum diuresis in pharmacologic studies at 1/20 the dose required for chlorothiazide.

What are the major diuretic indications for NaClex?
NaClex produces diuresis, weight loss, and symptomatic improvement in edema associated with conditions such as congestive heart failure, cirrhosis of the liver, chronic renal diseases (including nephrosis), premenstrual tension, toxemia of pregnancy, and obesity. Edema of local origin and that caused by steroids may also benefit.

To what extent is NaClex useful in hypertension?
NaClex has definite antihypertensive properties, and may be used alone in mild hypertension. In severer cases it may be used with other antihypertensive drugs, potentiating them and permitting their use at lower dosage. In hypertension with associated water retention, NaClex is of twofold value. It may be prescribed for congestive heart failure as an ancillary measure to digitalis.

Is potassium excretion a problem with NaClex?
In short-term therapy, excessive potassium excretion is unlikely. In the effective dose range, potassium loss varies from 1/6 to 1/2 that of sodium. Naturally, the ratio of these ions depends on the rate at which excess sodium stores are depleted, and whether salt intake is restricted.

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Supply: Available in yellow, scored 50 mg. tablets.

References: 1. Ford, R. V., Cur. Therap. Res., 2:51, 1960. 2. Pitts, R. F., Am. J. Med., 24:745, 1958.

For complete dosage schedules, precautions, or other information about new NaClex, please consult basic literature, package insert, or your local Robins representative, or write to A. H. Robins Co., Inc., Richmond, Va.

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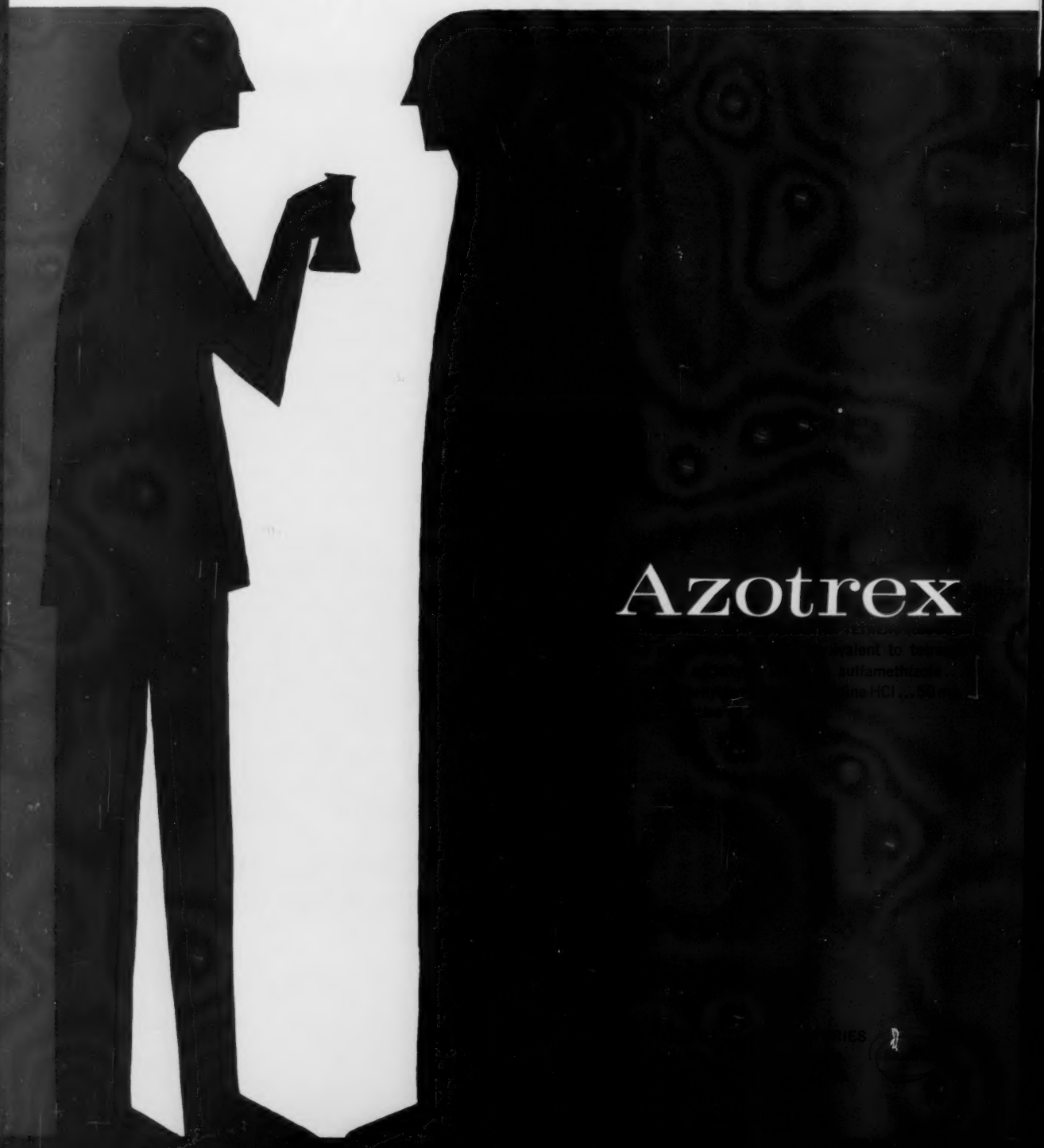
"I'm sending this urine specimen from the patient with pyelitis to the lab. What'll I order while I'm waiting for the findings?"

"I'd use AZOTREX. *The azo dye will give her quick symptomatic relief. The sulfa-tetracycline combination is likely to hit the common urinary pathogens. If she doesn't respond, then switch to something else when you get the sensitivity data."*



Azotrex

valent to tetra-
sulfamethizole ...
line HCl ... 50 mg.

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In active people who won't take time to eat properly, MYADEC can help prevent deficiencies by providing comprehensive vitamin-mineral support. Just one capsule a day supplies therapeutic doses of 9 important vitamins plus significant quantities of 11 essential minerals and trace elements. MYADEC is also valuable in vitamin depletion and stress states, in convalescence, in chronic disorders, in patients on salt-restricted diets, or wherever therapeutic vitamin-mineral supplementation is indicated.

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nutritional
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high potency vitamin-mineral supplement

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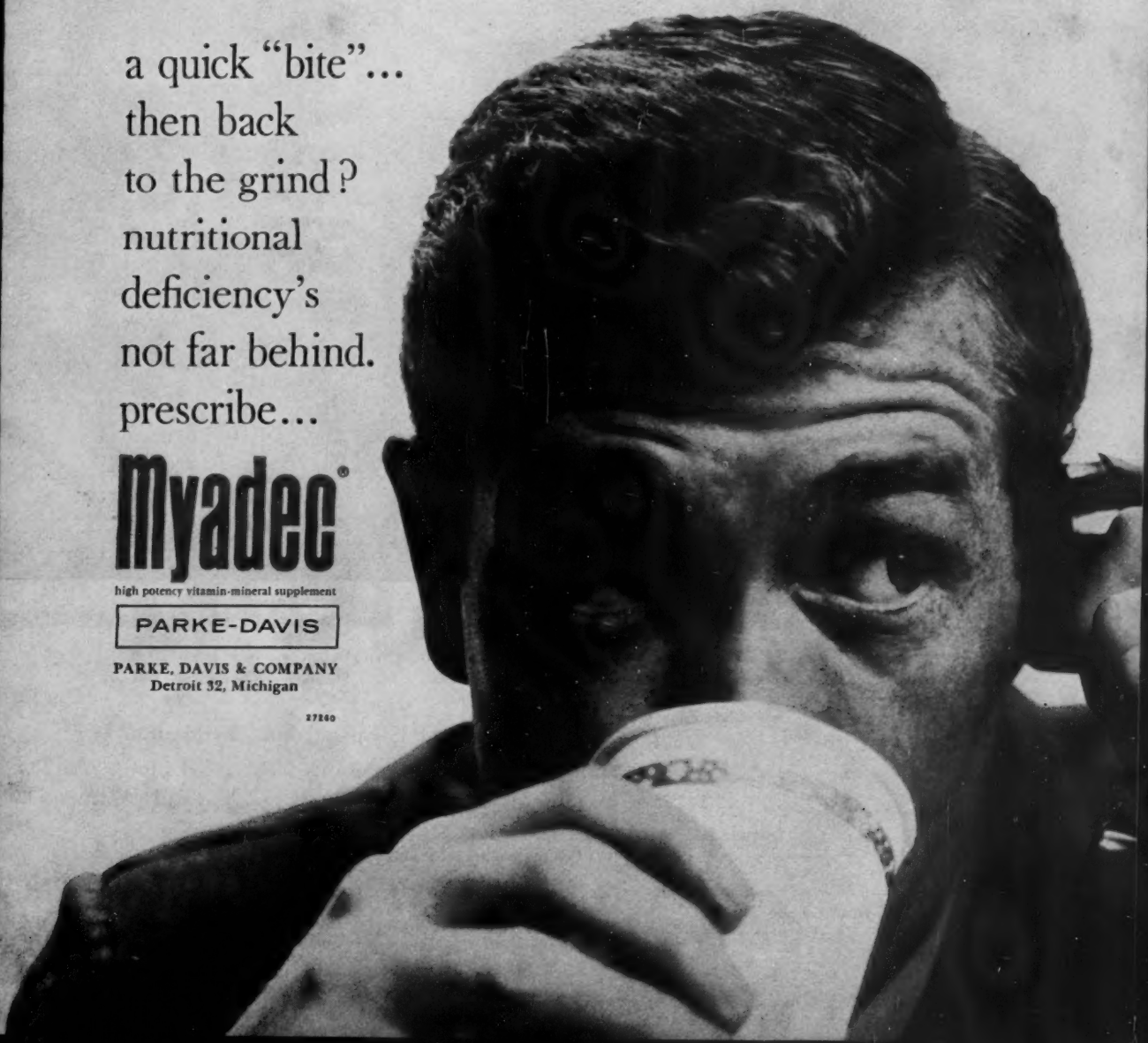

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Hydroflumethiazide • Reserpine • Protoveratrine A

An integrated multi-therapeutic antihypertensive, that combines in balanced proportions three clinically proven antihypertensives.

In each **SALUTENSIN** Tablet:

Saluron® (hydroflumethiazide)— a saluretic-antihypertensive	50 mg.
Reserpine—a tranquilizing drug with peripheral vasorelaxant effects	0.125 mg.
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Comprehensive information on dosage and precautions in official package circular or available on request.

BRISTOL LABORATORIES • Syracuse, New York

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Tain

(Triacetyloleandomycin, Triaminic® and Calurin®)

to contain the bacteria-prone cold

safe antibiosis

Triacetyloleandomycin, equivalent to oleandomycin 125 mg. This is the URI antibiotic, clinically effective against certain antibiotic-resistant organisms.

fast decongestion

Triaminic®, 25 mg., three active components stop running noses. Relief starts in minutes, lasts for hours.

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Calurin®, calcium acetylsalicylate carbamide equivalent to aspirin 300 mg. This is the freely-soluble calcium aspirin that minimizes local irritation, chemical erosion, gastric damage. High, fast blood levels.

TAIN brings quick, symptomatic relief of the common cold (malaise, headache, muscular cramps, aches and pains) especially when susceptible organisms are likely to cause secondary infection. Usual adult dose is 2 Inlay-Tabs, q.i.d. In bottles of 50. ℞ only. Remember, to contain the bacteria-prone cold...TAIN.

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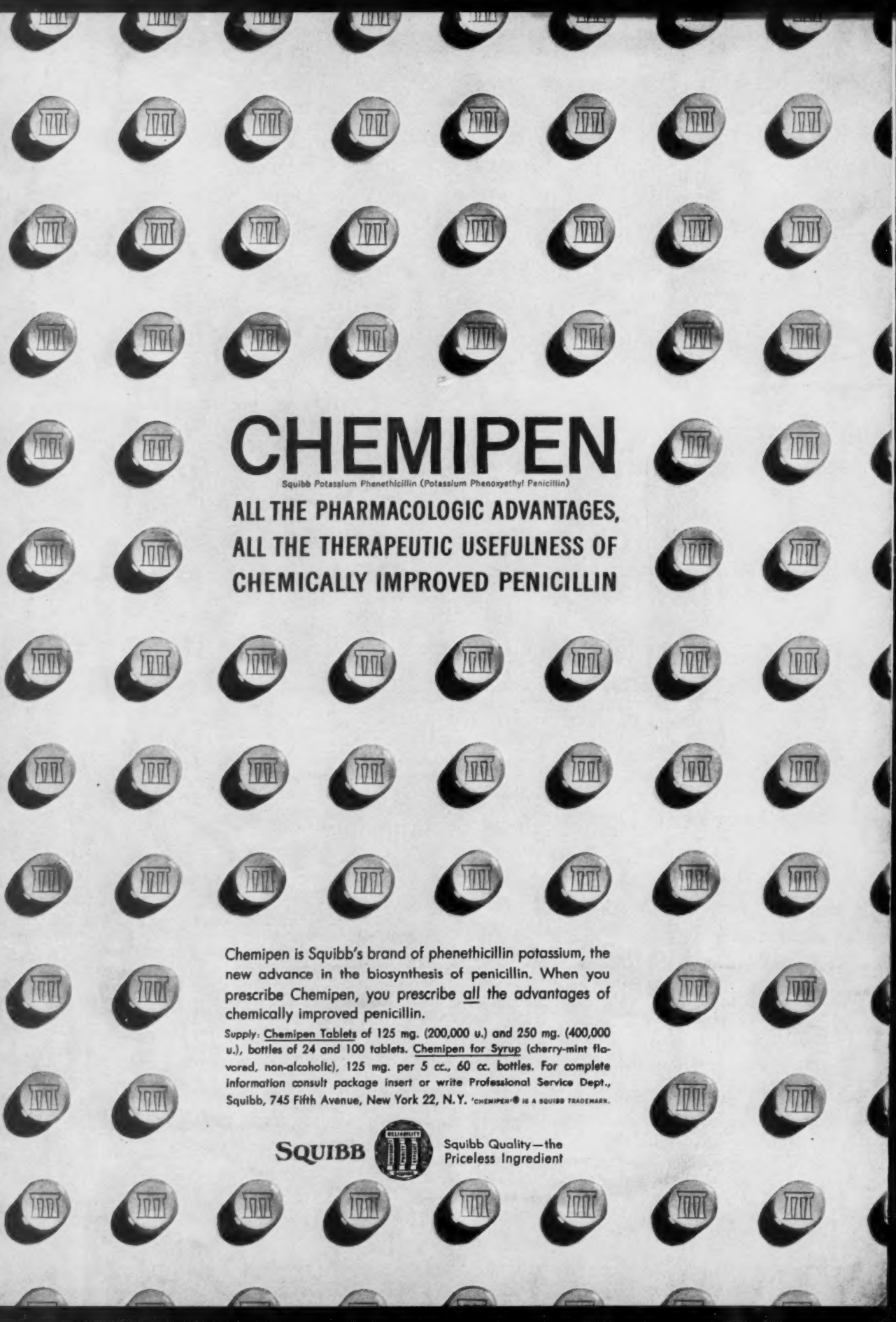

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for the patient who is

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HASACODE®

- ✻ **Quiets the overactive cough reflex**
- ✻ **Relieves aches and fever**
- ✻ **Sedates the anxious patient**
- ✻ **Handy tablet form**

COMPOSITION: Each tablet contains:

Acetylsalicylic Acid	2½ grains
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Phenobarbital	¼ grain
Codeine Phosphate	¼ grain
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DOSE: One or two tablets every 3 or 4 hours, as required. Not more than 8 tablets should be taken in 24 hours. WARNING: *may be habit forming.*

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Same formula as HASACODE, but with ½ grain codeine phosphate. For use where relief of pain is the primary target. DOSE: As for HASACODE.

And for relief of less severe type of respiratory infection:

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Richmond, Virginia

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Erythromycin, Abbott

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And against many of the troublesome "staph" strains—a group which shows increasing resistance to penicillin and certain other antibiotics—Erythrocin continues to provide bactericidal activity. Yet, as potent as Erythrocin is, *it rarely has a disturbing effect on normal gastro-intestinal flora.* Comes in easy-to-swallow Filmtabs®, 100 and 250 mg. Usual adult dose is 250 mg. every six hours. Children, in proportion to age and weight. Won't you try Erythrocin?

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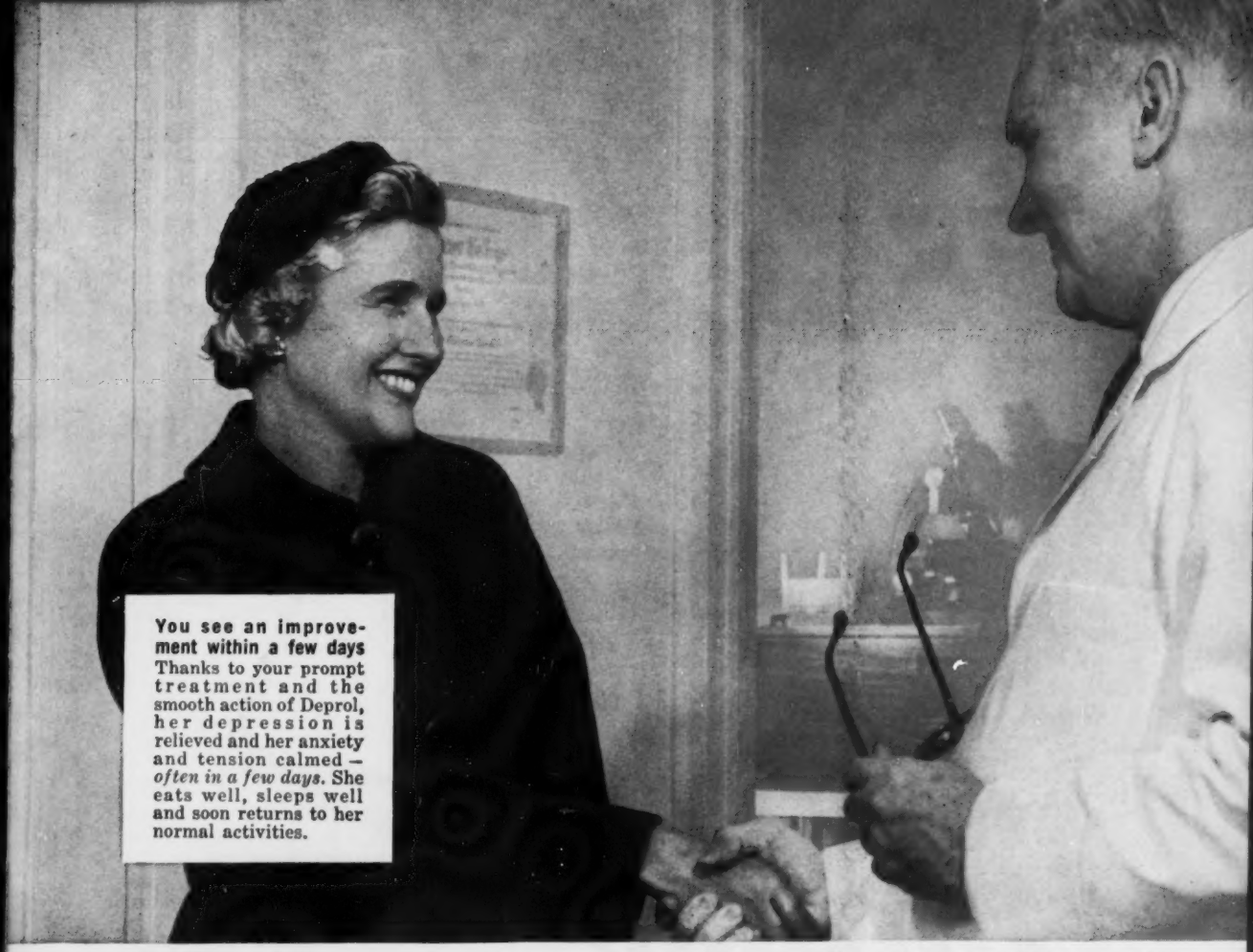
You see an improvement within a few days
Thanks to your prompt treatment and the smooth action of Deprol, her depression is relieved and her anxiety and tension calmed – *often in a few days.* She eats well, sleeps well and soon returns to her normal activities.

Lifts depression...as it calms anxiety!

Smooth, balanced action lifts depression as it calms anxiety...rapidly and safely

Balances the mood – no "seesaw" effect of amphetamine-barbiturates and energizers. While amphetamines and energizers may stimulate the patient – *they often aggravate anxiety and tension.*

And although amphetamine-barbiturate combinations may counteract excessive stimulation – *they often deepen depression.*

In contrast to such "seesaw" effects, Deprol's smooth, *balanced* action lifts depression as it calms anxiety – both at the same time.

Acts swiftly – the patient often feels better, sleeps better, within a few days. Unlike the delayed action of most other antidepressant drugs, which may take two to six weeks to bring results, Deprol relieves the patient quickly – often within a few days. Thus, the expense to the patient of long-term drug therapy can be avoided.

Acts safely – no danger of liver damage. Deprol does not produce liver damage, hypotension, psychotic reactions or changes in sexual function – frequently reported with other antidepressant drugs.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate. **Supplied:** Bottles of 50 light-pink, scored tablets. Write for literature and samples.

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WALLACE LABORATORIES/ *Cranbury, N. J.*

CD-2839

an antibiotic improvement designed to provide greater therapeutic effectiveness

now Pulvules® Ilosone®

(propionyl erythromycin ester lauryl sulfate, Lilly)

in a more acid-stable form assure adequate absorption even when taken with food

Ilosone retains 97.3 percent of its antibacterial activity after exposure to gastric juice (*p*H 1.1) for forty minutes.[1] This means there is more antibiotic available for absorption—greater therapeutic activity. Clinically, too, Ilosone has been shown[2,3] to be decisively effective in a wide variety of bacterial infections—with a reassuring record of safety.[4]

Usual dosage for adults and for children over fifty pounds is 250 mg. every six hours.
Supplied in 125 and 250-mg. Pulvules and in suspension and drops.

1. Stephens, V. C., *et al.:* J. Am. Pharm. A. (Scient. Ed.), *48*:620, 1959.
2. Salitsky, S., *et al.:* Antibiotics Annual, p. 893, 1959-1960.
3. Reichelderfer, T. E., *et al.:* Antibiotics Annual, p. 899, 1959-1960.
4. Kuder, H. V.: Clin. Pharmacol. & Therap., in press.

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VOLUME 21 NOVEMBER, 1960 No. 11

Panel Discussion on Dialysis

Opening Remarks

ERNST PESCHEL, M.D.

DURHAM

The initial paragraph of the first publication on an artificial kidney, written in 1913 by Abel, Rountree, and Turner from Johns Hopkins, describes very well the purpose of such an instrument. The title of the paper is "On the Removal of Diffusible Substances From the Circulating Blood by Means of Dialysis", and the first paragraph reads like this:

> There are numerous toxic states in which the eliminating organs of the body, more especially the kidneys, are incapable of removing from the body, at an adequate rate, the natural or unnatural substances whose accumulation is detrimental to life. In the hope of providing a substitute in such emergencies, which might tide over a dangerous crisis, as well as for the important information which it might be expected to provide, concerning the substances normally present in the blood, and also for the light that might thus be thrown on intermediary stages of metabolism, a method has been devised by which the blood of a living animal may be submitted to dialysis outside the body, and again returned to the natural circulation without exposure to air, infection by microorganisms, or any alteration which would necessarily be prejudicial to life. This process may be appropriately referred to as "vivi-diffusion."

All types of artificial kidneys are based on this principle of vivi-diffusion, as they called it, or extracorporeal hemodialysis, as we call it now: the substitution of an artificial semi-permeable membrane for the non-functioning or insufficiently functioning kidney.

As an introduction to our discussion, I would like to make a few comments on the history of the artificial kidney, and on the indications for its use in general. Other members of the panel will then talk about more specific aspects of the treatment.

Presented before the Section Internal Medicine, Medical Society of the State of North Carolina, Raleigh, May 10, 1960.

The first utilization of the principle of dialysis, by Abel, Rountree, and Turner 47 years ago, was in experimental animals. Attempts to apply it in human beings failed at that time, mainly for two reasons: No material satisfactorily suitable as a semi-permeable membrane was available, and no effective and sufficiently non-toxic anticoagulant existed. Both these problems were solved during the years of the last war when cellophane and heparin became available.

In 1943 a Dutch physician, Willem Kolff, described the first artificial kidney that was practicable in human beings. He had constructed it with rather primitive means and used it successfully in a few patients. It consisted of a drum around which a cellophane tube was wound. While the drum rotated, the blood was promoted by gravity and the patient's arterial pressure. The bath fluid into which the tubes were immersed contained the essential electrolytes in normal concentrations or modified according to the need for removing, or adding any individual blood component. Dialyzation took place while the tubes were dipping into the fluid.

The first lot of this model was ready in September, 1944. Dr. Kolff's facilities in Holland for further developing the instrument were limited, and he came to this country in 1951, joining the Cleveland Clinic, where he still is.

In the meantime, in 1947, artificial kidneys of somewhat different construction had been designed in Sweden and in Canada. The Swedish model is used in some clinics in Europe. It works with a stationary cellophane tube around which the dialyzing fluid is moved.

Another type, again considerably different, was described in 1948 by Skeggs and

Leonard of Cleveland. This type is used in a number of places in this country, mainly in the west.

Kolff, in cooperation with a group in Boston, had perfected his original instrument just when the Korean war started. A so-called renal insufficiency center was set up around such an instrument in Korea to which wounded soldiers were flown by helicopter from the front hospitals. In a relatively short time the great value of this instrument was definitely established. Since then, its use has been gradually increasing.

This is quite an expensive, complicated instrument. Its fundamental construction is similar to Kolff's first type, but it has many additional features, mainly concerned with treating the blood more gently on its way outside the body.

Kolff tried to simplify it and at the same time to include the feature of ultrafiltration, which was not possible with the original model. Ultrafiltration is desirable because most oliguric or anuric patients are overhydrated from the unsuccessful attempt to force the production of urine by giving fluids. Unless the oliguria is prerenal in origin, this measure does not work, and increases the danger to the patient.

This latest type of artificial kidney has been commercially available for the past three years. We have found its technical performance to be very good. The actual kidney consists of cellophane tubing encased in a fiberglass screen and wound in form of a coil. The whole dialyzing unit can be held in one hand. The apparatus is not only simpler in construction than former models, but it also obviates the cumbersome and time-consuming procedures of special sterilization, autoclaving, and so forth. The dialyzing unit, with all the parts which come in direct contact with the blood, is disposable; it is used only once. The units are supplied in sterile condition, immediately ready for use.

As to the general indications for dialysis, one might list three or perhaps four groups: (1) acute renal failure in a patient with previously healthy kidneys, due either to nephrotoxins or to acute tubular necrosis from ischemia, formerly called lower nephron nephrosis; (2) poisoning other than nephrotoxins—situations where the kidney itself is not necessarily damaged; (3) under certain circumstances, selected cases of chronic renal disease; (4) miscellaneous situations such as intractable edema or hepatic coma.

* * *

The Use of the Artificial Kidney in the Treatment of Acute Tubular Necrosis

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Experience with artificial kidneys in treating acute tubular necrosis has increased remarkably in the past 10 years. Although hemodialysis was being utilized in the treatment of this disease in several large centers in this country prior to then, enthusiasm for its use was limited and sporadic.

At least two factors have served as impetus for this mushrooming experience. First, during the oKrean War it was amply demonstrated, after the development of a renal center in which thorough medical management could be achieved, that the use of the artificial kidney strikingly reduced the mortality rate from 80 to 50 per cent in posttraumatic acute tubular necrosis[1]. Second, the development of a more portable, more easily operated, and less expensive instrument, as typified by the Kolff twin-coil kidney[2], has made the apparatus more widely available.

The ensuing accumulated experience has resulted in more or less general agreement that hemodialysis is a necessary concomitant to the conservative management of acute tubular necrosis. There seems to be little doubt that hemodialysis has been life-saving in certain instances where other measures failed, and, further, there is a growing body of evidence that hemodialysis decreases the

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morbidity and incidence of complications in acute tubular necrosis.

It should be pointed out, however, that whether or not hemodialysis materially affects the mortality rate in acute tubular necrosis (other than in those cases associated with severe trauma) remains unestablished. At a recent conference in which information from many areas was combined[3], the over-all mortality rate was found to be 43 per cent, a figure which has been achieved before in civilian practice by conservative management alone.

It is highly unlikely that this question of mortality will be answered within the near future. Nevertheless, this doubt does not detract from the efficacy of the artificial kidney in selected problems in acute tubular necrosis, but should serve only to restrain us from overlooking important clues in the pathogenesis and thorough medical management of the disease.

As experience with the artificial kidney has broadened, indications for its use have changed. At present they range from those which are clearcut and agreed upon to those which are vague and in dispute.

Chemical Imbalances

Hyperkalemia

The most notable and unchanging indication for hemodialysis is uncontrollable hyperkalemia. Hemodialysis is unsurpassed in the rapidity and certainty with which the extracellular concentration of potassium may be reduced. At the North Carolina Memorial Hospital, however, the incidence of uncontrollable hyperkalemia has been impressively reduced by the aggressive use of cation exchange resins. Uncontrollable hyperkalemia, therefore, in our experience, is not a common indication for dialysis. There are times, however, when patients are admitted to the hospital with dangerous extracellular concentrations of potassium, and the more conservative measures are not satisfactory in achieving normal serum potassium concentration. The following case is illustrative.

Case 1

A 16 year old Negro boy with a history of five days of anuria (see table 1) had come to the Emergency Room because of "kidney colic" two weeks before admission. Then it had been learned that he had undergone a right nephrectomy several years previously because of renal stones. On the night of admission physical examination revealed a lethargic boy who demonstrated marked weakness and areflexia, and the electrocardiogram showed idioventricular rhythm, all suggestive of hyperkalemia. The serum potassium was 9.7 mEq. per liter. Administration of a solution containing 50 per cent glucose with insulin and calcium gluconate was begun. A flat film of the abdomen revealed a calculus just superior to the left ureterovesical junction. An attempt to pass a ureteral catheter beyond the calculus was unsuccessful.

Table 1

Early Hospital Course of a Patient with Anuria of Five Days' Duration

TIME	SERUM (K)+	CLINICAL STATUS	TREATMENT
11:00 P.M.	9.7	OBTUNDED, WEAK, AREFLEXIC; ECG = IDIOVENTRICULAR RHYTHM	50% GLUCOSE WITH INSULIN Ca ↔ GLUCONATE, RESIN ENEMAS
12:30 A.M.	8.8	STRONGER, ACTIVE REFLEXES. ECG = NORMAL RHYTHM AND SIGNS OF HYPERKALEMIA	SAME AS ABOVE. UNSUCCESSFUL ATTEMPT AT URETERAL CATHETERIZATION
2:00 A.M.	8.7	ALERT, MUCH STRONGER. ECG = NORMAL RHYTHM AND PEAKED T WAVES	SAME AS ABOVE
4:00 A.M.	8.7	SAME	SAME
7:30 A.M.	6.5	ALERT	DIALYSIS STARTED
10:30 A.M.	4.8	ALERT, NORMAL ECG	DIALYSIS ENDED URETEROLITHOTOMY PERFORMED
8:30 P.M.	4.2	LARGE DIURESIS	

It was decided that a urethrolithotomy should be performed as soon as the serum potassium could be lowered to a safe level. After several hours of administration of glucose and insulin and calcium gluconate intravenously and sodium exchange resins by rectum, the serum potassium remained at 8.7 mEq. per liter. It was then decided that the artificial kidney should be used. Hemodialysis was undertaken for three hours, at which point the serum potassium was 4.8 mEq. per liter. It should be mentioned that a serum potassium determination obtained at the time dialysis was started was 6.5 mEq. per liter. Following dialysis, a ureterolithotomy was performed and a stone found to consist of pure cystine was removed. The patient began voiding freely, had an unremarkable postoperative course, and has continued to do well.

The case demonstrates several principles. First of all, the measures that were initially used to lower serum potassium—that is, administration of glucose and insulin intravenously and cation exchange resins rectally—can be quite effective in combating hyperkalemia. Secondly, these measures cannot always be depended upon to lower serum potassium to safe levels and to keep the concentration low. In these instances the artificial kidney is almost always effective. It should be pointed out that the case just cited was encountered early in our experience with the artificial kidney. Were a similar situation to arise at our hospital now, we would doubtless institute dialysis much earlier.

Others

Other chemical derangements such as extreme elevations in blood urea nitrogen and marked acidosis in themselves are often considered in some centers as indications for dialysis. Because extracellular fluid is effectively removed by machines employing ultrafiltration—such as the Kolff twin-coil kidney—marked overhydration, when resulting in symptoms of water intoxication or cardiac failure, may be an indication for hemodialysis. Dialysis may be extremely useful, since the main avenue for the disposal of excess fluid, the urine output, is absent.

Clinical Deterioration

It has become increasingly apparent to those treating acute tubular necrosis that lowering the serum potassium to normal, as well as correcting acidosis and other electrolyte derangements, does not uniformly prevent clinical deterioration as manifested by mental obtundity, twitching, convulsions, and coma. Furthermore, there is not always clear correlation between the appearance of these symptoms and the concentration of blood urea nitrogen, in itself not thought to be toxic, but rather an indication of the retention of other substances which are toxic. For these reasons, clinical deterioration of the patient rather than chemical abnormalities *per se* has become a major indication for hemodialysis.

At the present time the ease of decision to dialyze is directly dependent upon the rigidity of criteria used to make the decision. At the North Carolina Memorial Hospital clinical deterioration has been the most frequent reason for dialysis in acute tubular necrosis.

I should like to illustrate how this criterion is applied by presenting two cases which are similar in several respects (fig. 1). The patients were both of approximately the same age, the etiology of the tubular necrosis was associated with pregnancy in both cases, and both patients appeared acutely ill upon admission to the hospital. In one case it was felt necessary to institute hemodialysis and in the other it was with-

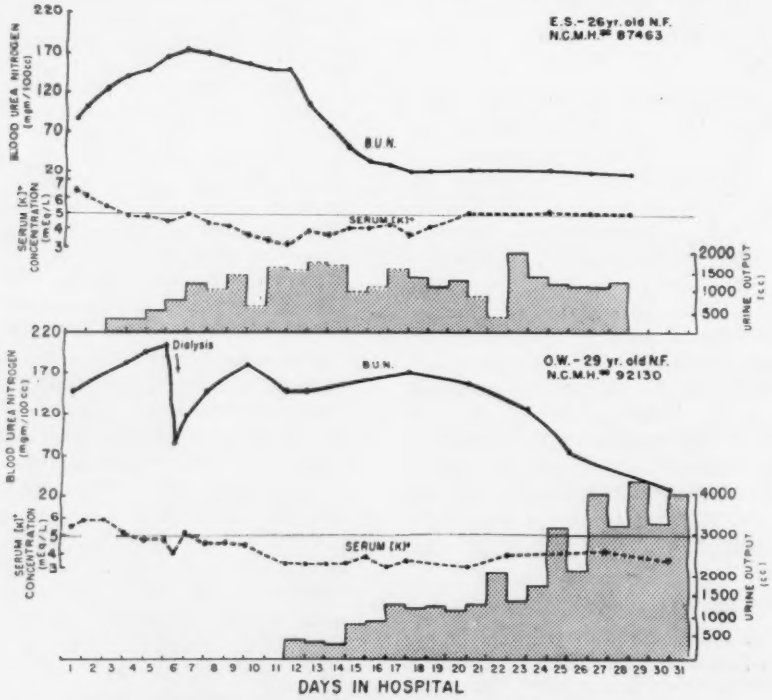

Fig. 1. Hospital course of two patients with acute tubular necrosis. (Dialysis was undertaken in patient represented in lower part of figure because of clinical deterioration.)

held. Both patients recovered and at present are doing well.

Case 2

Five days prior to admission a 26 year old Negro woman, gravida ix, para vii, had been admitted to another hospital because of continuous convulsions associated with toxemia of pregnancy. There a caesarean section had been performed. During the succeeding five days the urinary output decreased progressively from 450 cc. on the first postoperative day to 50 cc. on the day of admission to our hospital. She was transferred to the North Carolina Memorial Hospital because of the oliguria.

Physical examination revealed an agitated Negro woman who appeared critically ill. Pertinent findings were slight cardiomegaly and other signs of mild congestive heart failure, a soft abdomen with bowel sounds, a clean-looking abdominal wound, and 2 plus sacral edema.

Chemical data were: serum sodium 109 mEq. per liter, serum potassium 6.5 mEq. per liter, serum and carbon dioxide 11.7 mEq. per liter. A chest film revealed an enlarged heart and questionable pulmonary congestion. Electrocardiogram showed moderate peaking of the T waves, but no other evidence of hyperkalemia.

At this juncture it was felt that the diagnosis of acute renal failure was firmly established. The eitology was not clear, although the history of toxemia with convulsions plus the caesarean section were thought to be a likely background for hypotension and subsequent acute tubular necrosis.

It was decided that no clear cut indications for dialysis were present, but that it should be instituted in the event of further clinical deterioration. The patient was digitalized and a program of sodium ion exchange resin by rectum was begun. Hypertonic glucose was given in order to minimize protein breakdown and afford proper water replacement.

During the ensuing 24 hours the serum potassium was lowered to 5.5 mEq. per liter, and the patient became slightly more alert. Thereafter the serum potassium remained within normal limits, the carbon dioxide returned to normal, and the patient became even more alert and felt stronger. Management consisted of proper replacement of water, supply of carbohydrate, and continued resin enemas. Diuresis began on the third hospital day and was adequate by the seventh day. Dialysis was withheld from this patient, since there was no mental deterioration and the chemical environment was satisfactorily controlled.

Case 3

A 29 year old Negro woman, gravida v, para iv, was admitted to another hospital four days prior to admission to the North Carolina Memorial Hospital. She gave a history of having missed one menstrual period. On the day of admission there she had experienced severe generalized abdominal pain and marked vaginal bleeding. She was febrile and hypotensive, and pelvic examination revealed placental tissue in the cervical os. No history of self-induced abortion could be obtained. The bleeding was controlled by Pitocin. The following day, during a blood transfusion, she became febrile, apprehensive, and complained of chilly sensations. During the ensuing four days urinary output was always less than 300 cc. per day.

Because of this situation she was transferred to the North Carolina Memorial Hospital. Examination on admission disclosed an acutely ill-appearing, well oriented Negro woman. The temperature was 98°F., pulse 90, respiration 20, and blood pressure 130 systolic, 80 diastolic. The heart was not enlarged, and there was no evidence of congestive heart failure. The abdomen was distended and tender, and there were no bowel sounds. There was 1 plus pretibial edema and no sacral edema. Expert opinion was that a dilatation and curettage was not indicated and that peritonitis was not present.

Chemical data were: serum sodium 126 mEq. per liter, serum potassium 5.5 mEq. per liter and serum carbon dioxide 13 mEq. per liter. A chest film was negative and an electrocardiogram showed no signs of hyperkalemia.

The patient was treated for four days with proper fluid replacement, calories adequate to minimize protein breakdown, and cation exchange resins. During this time hyperkalemia and acidosis were not a problem. She became more lethargic, and on the night of the fourth day she had a convulsion and became much less responsive.

Because of these developments, a six-hour dialysis was performed on the following day. Although she did not become more alert, the twitching, which had been prominent, disappeared. Since the next few days following dialysis brought little change, the measure was not repeated.

Diuresis began on the twelfth day and gradually became more marked. The patient became more alert and active, and fully recovered.

Although it cannot be proved that dialysis was life-saving in this case, it seems probable that it might have been since the patient showed evidence of deterioration early in the course of anuria.

Prophylaxis

Although there have been recent reports which propose repeated prophylactic dialyses as a means to prevent clinical deterioration[4], this is not practical in most institutions at present. Since the over-all mortality rate in acute tubular necrosis is about 50 per cent without it, dialysis of all patients in order to lower mortality would result in many unnecessary dialyses. Therefore, the efficacy of prophylactic dialysis should be clearly established before it is undertaken on a widespread scale.

Summary

The value of hemodialysis as a therapeutic adjunct in the management of acute tubular necrosis has been firmly established, although the fundamental question of whether mortality rate will be lowered by its use remains unanswered. Indications for dialysis range from those which are undisputed to those which are not agreed upon. Uncontrollable hyperkalemia continues to be the clearest indication for dialysis. At present clinical deterioration, rather than chemical abnormalities *per se* (other than hyperkalemia), seems to be a more reliable criterion. Whether prophylactic dialysis is the best means of managing acute tubular necrosis remains to be established.

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The Use of the Artificial Kidney in Poisonings

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Naturally an artificial kidney was first used to treat patients with renal disease. It then was a short step to use hemodialysis to help normal kidneys rid the body of exogenous toxins before irreparable damage had been produced. The latter application is limited only by the biochemical behavior of the poison. The molecule must be small enough to pass through the membrane, and this flow across the membrane should be rapid enough to clear the blood of a large proportion of the ingested dose within a short time. The rate at which the toxin is removed will be determined by the rapidity and degree of plasma protein and tissue binding, the rate of its metabolic degradation, the volume of tissue distribution, and the route of excretion of the agent or its degradation products. These factors, too, determine the prognosis, particularly if a long period has elapsed since the poison was taken or if a tremendously large dose was used.

Because most dialyzable poisons (table 1) produce coma, the initial problem is usually the management of coma. Recent evidence[1] suggests that conservative management with minimum medication results in the lowest morbidity and mortality. This requires simply the maintenance of adequate blood pressure, urine flow and respiratory gas exchange, together with scrupulous clinical observation so that the earliest signs of deterioration may be detected. This is the stage in which hemodialysis is probably indicated unless the toxic agent is one which may produce irreparable damage. Then hemodialysis on identification seems preferable.

This procedure is not a substitute for rational management, and if a conservative program is followed it will not be necessary in most cases. We routinely have our coma patients seen in consultation and followed by an anesthesiologist, who is responsible for the maintenance of respiratory exchange.

Table 1

Dialyzable Agents

Phenobarbital
Butabarbital
Amobarbital
Pentobarbital
Secobarbital
Bromide
Salicylate
Glutethimide (Doriden)
Ethinyl-cyclohexyl carbamate (Valmid)
Ethylene glycol
Streptomycin

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When necessary, an indwelling endotracheal tube is used. Hydration and urine flow are maintained by appropriate parenteral fluids with a catheter indwelling to permit careful measurement of flow. We determine blood pH, carbon dioxide, sodium and potassium and end-expiratory carbon dioxide as indicated. A portable chest film and an electrocardiogram are taken as soon as possible. If clinical or radiographic evidence of pneumonia is present, an appropriate bactericidal antibiotic is used. We do not "cover" the indwelling catheter with an antibiotic, because the catheter will be removed shortly and we will not be able to prevent the entrance of micro-organisms with any of the antimicrobial agents currently employed; if bacteriuria persists after recovery, appropriate therapy is instituted. Nor do we employ analeptic agents, which have been useless in our experience.

Barbiturates

Members of the barbiturate family are still the most popular drugs for suicide attempts, and fortunately most of these are dialyzable[2]. Phenobarbital is probably the most effectively removed, with butabarbital, amobarbital and pentobarbital following in this order. Secobarbital is metabolized so rapidly that it is poorly dialyzable. Our last four instances of barbiturate poisoning were produced by butabarbital; none of these required dialysis. Despite their entrenched position, barbiturates are giving some ground to the newer synthetic hypnotics among the distraught and suicidal. Fortunately two of these hypnotics are dialyzable-glutethimide (Doriden)[3] and ethinyl-cyclohexyl carbamate (Valmid)[4]. We have had no serious intoxication with any agents other than glutethimide and have had no deaths in patients who have been indiscreet in using this latter preparation.

If an artificial kidney had been available two or three decades ago in North Carolina, we would probably have found greater use for it in the treatment of bromide poisonings because bromide intoxication can be treated most effectively in this manner[5]. This agent was once a Carolina favorite and as recently as 1951 Hodges and Gilmour[6] reported 36 cases of bromide intoxication observed in a three year period.

Salicylate poisoning is a problem of increasing importance in our expanding population, because children may ingest large quantities accidentally. Salicylate poisoning is a mixed disturbance, producing both respiratory alkalosis and metabolic acidosis[7], and is difficult to treat because of its complexity. Fortunately salicylate is dialyzable and hemodialysis has proved quite effective in lowering morbidity and mortality when employed soon enough[8].

Another agent frequently ingested accidentally in the belief or hope that it may be a substitute for ethyl alcohol is ethylene glycol. This is a major constituent of automobile antifreeze and when ingested may produce severe central nervous system, cardiac, and renal damage. Prompt hemodialysis in such a situation may prevent irreversible changes in the central nervous system as well as the precipitation of oxalate crystals in the kidney which might be expected to produce a severe permanent nephropathy[9].

Finally some attention might be directed to an iatrogenic condition in which hemodialysis can be of therapeutic value. Streptomycin is excreted by the kidney, so that in chronic renal disease decreased excretion may lead to prolonged retention with greater danger of damaging the eighth nerve. For this reason it has been recommended that the use of streptomycin be carefully limited in patients wth chronic renal disease. It is dialyzable, however, and hemodialysis has been used successfully for the alleviation of ototoxicity[10].

Summary

The artificial kidney properly employed is a useful means of treating certain cases of poisoning. It is not a substitute for but rather a logical addition to proper medical management.

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Additional Uses of the Artificial Kidney:
Selected Cases of Chronic Renal Failures
Intractable Edema; Hepatic Coma

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In the treatment of chronic and irreversible diseases, the two basic features of the twin-coil artificial kidney[1], dialysis and filtration, may be employed as palliative measures. Other standard therapeutic methods have inherent limitations (failure to remove nitrogenous products and fixed acids). One need not, and should not, separate the employment of the artificial kidney from other forms of therapy, since life may be prolonged for greater periods than may be felt to be compatible in chronic diseases. The question often arises as to whether this practice is justified.

Chronic Renal Failure

The criteria for treatment of chronic renal failure lie primarily in the symptoms and signs rather than in specific abnormalities of the blood constituents. As the total functioning nephron units diminish, progressive derangements of the uremic syndrome become evident. While deterioration will increase in certain patients regardless of measures used, the hope is that the artificial kidney will reverse the trend and potentiate other forms of treatment. The following factors, therefore, will be considered in selecting patients for dialysis:

1. *Blood pressure:* The degree and duration of hypertension, if present, and whether it is benign or malignant should be considered. It has been shown that renal function decreases progressively as the blood pressure increases[2], and that it may improve with antihypertensive therapy resulting in lowered mortality[3]. Though the blood pressure may be controlled in patients having malignant hypertension, parenchymal and perivascular hyperplasia with varying degrees of renal parenchymal atrophy will develop, leading to progressive renal failure. When malignant hypertension is attended by renal failure, dialysis is not indicated. In severe benign hypertension, the prognosis is not favorable, but the over-all evaluation and response to antihypertensive drugs should be considered.

2. *Renal size:* If x-ray studies (a flat film of the abdomen, retrograde pyelograms, or both) show the kidneys to be significantly contracted, this loss of renal mass carries a grave prognosis. In addition, renal arteriograms will reveal a reduced vasculature, manifested as "silver wire" effects, rather than the normal diffuse fine glomular outline in the cortex.

3. *Associated diseases:* While uremia alone places a heavy burden on the patient, other debilitating disease, such as caricinomatosis, may nullify any benefit derived from dialysis; yet dialysis can play an important supportive role in preparing a seriously ill patient—for example, one with obstructing renal calculus—for surgery when otherwise only palliative measures might be undertaken.

4. *Histologic findings of renal biopsy:* Whether needle or open biopsies are done, examination of adequate specimens will be of diagnostic and prognostic value[5]. The histologic findings will strongly influence therapy.

5. *Volume of urine:* The volume of urine is of utmost importance. In the absence of dehydration, a fixed small volume (less than 1000 cc. per 24 hours) represents a serious further depression of glomerular filtration and a decrease of functioning nephrons due

to glomerular and parenchymal disease[6]. Prognosis is poor when this compensatory mechanism fails to meet even these minimal excretory needs. A serious drawback in the use of the artificial kidney is that urinary suppression can be produced during the procedure. This oliguria and/or anuria may last for several days, nullifying the beneficial effects of dialysis.

6. *Degree of elevation of serum creatinine and serum phosphorus:* When the serum creatinine approaches 12 mg. per 100 ml., approximately 95 per cent of the glomeruli are non-functioning[7]. Similarly, when phosphorus retention occurs, glomerular filtration is reduced to 20 per cent of normal volume[8]. Dialysis should not be done when both of these substances are markedly elevated.

In general, patients who have severe glomerular disease (subacute and chronic glomerulonephritis, lupus erythematosus, polyarteritis nodosa, scleroderma, amyloidosis, diabetic glomerulosclerosis, malignant nephrosclerosis) will respond poorly to dialysis, while those having parenchymal diseases, pyelonephritis, and polycystic renal disease may fare better.

Intractable Edema

Patients who have excessive fluid retention, whether due to cardiac failure, especially when attended by renal failure, or to renal disease primarily, may be benefited by dehydration[9].

Congestive heart failure need not be a contraindication to dialysis, though care must be taken to avoid potassium removal with resultant digitalis intoxication. Should the patient be refractory to diuretics or fail to respond rapidly and sufficiently enough to prevent death from pulmonary edema, then dialysis may be employed. Following dialysis the patients may once more become sensitive to diuretics.

Dialysis may prevent cardiopulmonary complications from developing in patients having the nephrotic syndrome due to membranous glomerulopathy resulting in oliguria. Time will be gained for a trial of steroid therapy.

Since 6 to 12 pounds of fluid may be removed during a course of treatment with the artificial kidney, care must be taken to avoid hypotension and vascular collapse. A slower rate of removal of edema fluid or multiple dialyses may be necessary to allow time between treatments for compartmental adjustments.

Hepatic Coma

The prognosis of hepatic coma is grave, since it represents further hepatic insufficiency and failure of detoxification of ammonia. Medical management[10] is directed toward either preventing the formation of excessive ammonia or utilizing ammonia already present. Dialysis will aid in the removal of ammonia should the response to medical management be insufficient, though it is probably not indicated in instances of improper diet or ingestion of ammonium drugs[11]. However, prognosis has been shown to be poor when the serum bilirubin concentration is greater than 20 mg. per 100 ml. and the sodium concentration less than 130 mEq. per liter in the presence of ascites or gastrointestinal bleeding[10a,c].

The development of renal insufficiency is also ominous[12]. While dialysis is not indicated in severe hepatic cell necrosis (acute yellow atrophy) it would seem to have something to offer in instances where renal failure has also developed, here to maintain the patient at a critical time while awaiting response to liver therapy. Dialysis may be of value in coma following hemorrhage from esophageal and gastric varices. The risk of further bleeding during dialysis can be lessened by the use of regional heparinization[13].

Summary

Admittedly, the over-all outlook for patients having chronic irreversible disease is poor. The use of the artificial kidney offers additional benefit through the removal of nitrogenous wastes, fixed acids, and edema, while correcting electrolyte disturbances. The selection of patients with chronic renal failure for dialysis is based on evidence of potential renal function. Consideration of blood pressure, renal size, histologic findings, urine volume, serum creatinine, serum phosphorus, and associated diseases helps to determine whether the artificial kidney should be employed. In intractable edema of cardiac or renal origin, filtration relieves danger to the cardiopulmonary system and allows time for other therapy. Ammonia is dialyzable and offers a means of supplemental therapy in hepatic coma, especially when renal failure occurs. Even with dialysis, however, the prognosis at this stage of liver disease remains poor.

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Closing Remarks

DR. PESCHEL

What is now actually the role of an artificial kidney in present day therapy? The conditions leading to its potential use are not too rare. Some have definitely become more frequent in recent years—for instance, acute renal failure associated (1) with transfusion reactions, particularly those due to the rarer incompatibilities such as Kell antibodies; or (2) with septicemias from antibiotic-resistant agents, such as staphylococci or gram negative organisms. Some arguments against setting up an artificial kidney laboratory, which is still rather expensive, used to be about like this: "We have achieved considerable success in managing acute renal failure by conservative means; the chances for survival and recovery are excellent in skilled hands; the few patients who are going to die will do so regardless of how you treat them." Such arguments are heard less and less. First, it seems we have to revise a little the over-all mortality rate of acute tubular necrosis treated by optimal conservative management. What seemed to be 20 per cent for a while, might be closer to 50 per cent. Second, everybody who has some experience with an artificial kidney can enumerate a number of patients whose lives were definitely saved by this instrument.

Its usefulness should not be judged on a statistical basis. The patients with acute renal failure who are treated with it are usually so desperately ill that the survival rate will never be statistically impressive. But one should look at the individual lives which are saved by this means, usually for a return to a fruitful and normal life.

So, because potential dangers to life are present even in the apparently benign case, it is highly desirable to have an artificial kidney available, and one should know where the nearest one is. It is obvious that this is not an office procedure. Smaller hospitals might have difficulties to have the necessary manpower on hand, both in terms of number and of special experience. But larger hospitals should have an artificial kidney laboratory and the team prepared to run it. Which patient should be dialyzed and at which time, is a difficult decision which is best made while the patient is observed in the institution which has an artificial kidney. Therefore, the patient should best be

transferred as early as possible, before even the transportation as such might be an additional risk; that means: without waiting until dialysis seems unavoidable.

A number of other forms of dialysis have been used. Among them, only peritoneal lavage has proved of value. It is far less effective than the artificial kidney is and has its own technical drawbacks. But it is simpler in its application, needs less personnel, and might at least be valuable for areas where no artificial kidney is within reach.

Within the last weeks, a new technique of dialysis has been reported which you might have read about. It is meant to allow continuous hemodialysis or repeated prophylactic dialysis, leaving small cannulas in an arm artery and vein for a period of days or weeks. They are connected to form an AV shunt when not used for dialyzation, in this way keeping the same vessels usable again and again. It is perhaps too early to say much about this but it might be promising.

We would like now to try to answer any questions which might come from the audience.

Management of Childhood Nephrosis

WILLIAM J. A. DEMARIA, M.D.
DURHAM

A clinical disorder with no known cause, cure or method of prevention and with a high mortality rate is bound to have numerous forms of therapy. Such is the situation with so-called "pure" or "lipoid nephrosis" of childhood, in the management of which more than one hundred agents and procedures have been applied.

Known causes of the nephrotic syndrome do exist[1]. For example, it may be associated with diseases such as thrombosis of the renal veins, constrictive pericarditis, or diabetes, or it may be due to poisoning with heavy metals and poison oak or to drug intoxication with paramethadione; but these conditions will not be considered in this discussion.

Definition, Diagnosis, and Natural Course

Nephrosis may appear at any age but it occurs most frequently between 18 months and 4 years, with an estimated incidence of 2.1 per 100,000 children up to 9 years of age[2]. No real evidence supports a direct etiologic relationship between the disease and preceding infection, climate, season, diet, economic level, allergic history, or race. In individuals, however, one or more of these factors may affect the onset, the course of the disease, or both. The incidence is higher in males. The disease is reported in twins and in a second member of a family in about 2 to 3 per cent of cases[3].

Nephrosis is readily recognized when the patient manifests edema, proteinuria, hypoproteinemia, and hyperlipemia. If one limited the diagnosis to patients with these findings, however, other cases would go unrecognized or be misdiagnosed. In the early phase of the disease, or intermittently during its course, a patient may manifest only a significant proteinuria with doubly refractile or oval fat bodies in the urine. It may be some weeks before the low serum proteins, high serum lipids, and edema first appear or reappear. Hematuria, hypertension, and nitrogen retention may accompany the first known episode of nephrosis, and all three features or any combination of them may appear transiently during the course of the disease.

Alert parents may note first the appearance of periorbital edema. Because it frequently is intermittent and slight, it is passed off as a "cold," or an "allergy," or the parent may feel that "the child just needs more rest." During this phase the urine almost invariably reveals the proteinuria and usually the Maltese crosses under the polarizing microscope[4], whereas the characteristic blood chemistry findings may not be present. It is possible that the disease may remain in this subtle form until irreversible renal changes become established. The child may then first appear before the physician showing signs and symp-

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toms of a terminal renal syndrome and no previous recognizable history. Usually, however, after a period of weeks a generalized edema becomes apparent and is the major clinical symptom when the child is presented for diagnosis. Urinalysis reveals the proteinuria (1 or more grams per day) and Maltese crosses. Microscopic hematuria is not uncommon, and gross hematuria with red blood cell casts may be noted. One report records microscopic hematuria in 50 per cent of the cases during the first episode[5]. This "nephritic-appearing" urine may also be associated with hypertension and nitrogen retention in either the first episode of nephrosis or intermittently during the course of the disease, thereby causing some confusion in diagnosis. However, the additional blood chemistry findings and marked proteinuria characteristic of nephrosis usually aid in the differentiation of acute nephritis and nephrosis. Aid is often available in a further analysis of the urine[6]. In nephrosis the bloody urine is usually bright red with a yellow supernate following centrifugation, and the red blood cells are well preserved. In nephritis, on the other hand, the urine is brown, with a brownish supernate in the majority of cases. The red blood cells are less well preserved in the nephritic urine (46 per cent as compared with 84 per cent in nephrotic urine). It is important to note that occasionally a child with acute glomerulonephritis may transiently (one to two weeks) show a lowered total serum protein and albumin and elevated cholesterol[7].

The natural course of nephrosis after onset is quite variable. The majority of patients will have a spontaneous remission in about two months, followed in one to three years by a series of exacerbations and remissions, either of which may last for weeks or months. In rare cases the child may never have a relapse after the first remission, while occasionally the disease may progress rapidly, terminating in uremia and death. Studies of two series of nephrotic patients two or more years after onset reveal a range of apparent recovery between 18 and 41 per cent; continuing evidence of renal disease between 17 and 31 per cent and death between 42 and 51 per cent[8]. Because proteinuria and hypertension are known to occur five years after "recovery" and 20 years after onset[9], these relatively short-term follow-up figures do not afford us sufficient knowledge for accurate prognostics.

Remissions can occur following serious infections—for example, pneumonia, or peritonitis (most commonly pneumococcal), although such infections as the latter were the primary cause of non-renal deaths in nephrosis. Exacerbations occur spontaneously, but may follow mild upper respiratory diseases. As such infections, predominantly viral, are so common in the age range when the incidence of nephrosis is at its peak, the relationship could be coincidental rather than causal. Until a definitive process initiating nephrosis is identified and the possible influence of acute viral and bacterial diseases is well documented, one must be cautious in forming opinions based solely on clinical observations. Most authorities, however, accept a relationship between infections and nephrosis. As discussed in the section on treatment, methods for preventing infections and even the delaying of routine immunizations have been advised for the prevention of recurrences.

Immunology, Pathology, and Metabolism

Experiments with both human and animal subjects suggest that an antigen-antibody reaction is basic to the production of nephrosis, and that the predominant reacting tissue is the renal glomerulus[10]. Serial determinations of serum complement reveal a progressive decrease in concentration previous to a relapse, continued low levels while the disease is active, and a gradual rise just prior to remission. Since the low complement levels are not due to loss or decreased synthesis, it is presumably bound by the antibody reaction at the glomerulus[11].

The most consistent pathologic findings in the various stages of clinical nephrosis have been noted in the epithelium of the glomerular capillaries[12]. The normal capillary consists of three components. The inner lining —endothelium—is enveloped by the basement membrane, which in turn is surrounded by a layer of epithelium. Normally the epithelial cytoplasm is differentiated into numerous foot processes, which impinge on the outer aspect of the basement membrane. These processes are greatly decreased in number in all stages of nephrosis, and instead broad masses of epithelial cytoplasm are applied to the basement membrane. Farquhar and associates[12] speculate that this epithelial alteration may be secondary to

changes in the basement membrane which are inapparent under the electron microscope at this time. Later in the course of the disease areas of changed density in the basement membrane give it a moth-eaten appearance. Such a change would allow protein to leak from the glomerular capillary and possibly account for the supra-normal glomerular filtration rate noted early in the disease. The changes in the epithelium are thought possibly to reflect an attempt by the capillary to repair the holes in the basement membrane.

The changes noted in the basement membrane and endothelium appear to depend on the duration and severity of the disease. Thus the irregular thickening, decreased homogeneity, and moth-eaten appearance of the basement membrane become increasingly more apparent as the clinical disease progresses.

These recent findings are particularly interesting when compared with earlier clinicopathologic observations of Blackman[13]. He noted that the clinical progression of the many forms of Bright's diseases are correlated with high concentrations of proteinuria (more than 0.5 Gm. per 100 ml.), of which 35 per cent or more is often found to be globulin. He proposed that continuing exposure of the glomeruli to high concentrations of globulin promotes crescent and adhesion formation, with resultant loss in renal function. His studies suggest that if the concentration of protein in the glomerular filtrate could be decreased, the progress of the renal disease might be retarded or prevented.

Support for this contention is offered by the observation that nephrosis progresses to renal failure more often in children if urinary protein loss exceeds 6 Gm. per 24 hours and the urinary globulins exceed 45 per cent of the total urinary protein[14].

The increased permeability of the glomerular basement membrane permits massive proteinuria, most of which is albumin. However, as reported above and elsewhere[15], considerable loss of globulin, particularly the alpha fraction, may occur. The hypoalbuminemia is chiefly due to urinary losses, since synthesis of protein is normal or increased. An increase in the catabolism of plasma albumin, however, is an additional cause of hypoalbuminemia[16].

The elevated serum lipids (cholesterol, triglycerides, and phospholipids) are mostly bound to protein, and appear as low-density beta-lipo proteins[17]. The hyperlipemia may be initiated by the fall in albumin, since it is suggested that albumin acts as a transport mechanism for egress of cholesterol from the plasma to the bile. The triglyceride group of lipids rises first, followed by a rise in phospholipid and cholesterol[18]. Persistence of a high cholesterol value with normal albumin makes it difficult to accept this suggestion unless the transport defect may become irreversible. Further contradictory evidence is noted in one form of experimental nephrosis in which the hyperlipemia precedes the hypoproteinemia[19].

The mechanism of edema formation in nephrosis is also complex. Loss of albumin causes a decrease in blood volume, which stimulates the hypothalamic receptors to secrete antidiuretic hormone, resulting in water retention[20]. Increased secretion of aldosterone also occurs and causes tubular reabsorption of sodium, with further retention of water[21]. Other mechanisms contributing to edema beside low albumin must be considered in those rare cases of nephrosis associated with edema but with normal plasma proteins. Just as puzzling are the cases associated with hypoalbuminemia but no edema[1a, 5].

Although it appears likely that the primary process is in the kidney, it is difficult to account for some of the extrarenal metabolic dysfunction noted in nephrosis on this basis alone. A more widespread lesion occurring either as a primary immunologic response or secondary to a substance formed by such a response in an organ or a system may cause, for example, capillary damage and abnormal permeability to plasma protein. A similar suggestion has been used to explain either the selective or the generalized nature of acute glomerulonephritis[22].

Management

Until recently little help could be offered the child with nephrosis except attempts to alleviate his edema. As a result, a number of measures ranging from watermelon extracts to malarial infection were tried. Transient effects may result from intravenous administration of hyperoncotic plasma substitutes such as human serum albumin, hypertonic dextran and polyvinylpyrrolidone (P.V.P.). Diuretics [for example, xanthines, mercurials, urea, azetazolamide (Diamox) and chlorothiazide (Diuril)] are generally

ineffective, and in some instances probably contraindicated.

Low-sodium, low-protein, high-protein, and low-fat, low-salt, low-protein (rice) diets have been advocated, but no one specific diet has proven universally beneficial for nephrosis. In some instances these diets may even be detrimental if not used with discretion.

It is unfortunate that our current therapy is still partly based on assumptions, oversimplifications, opinions, and clinical hunches. However, the following is the simplified and tenuous schema of some factors involved in nephrosis upon which our management is based:

An immunologic response increases the permeability of the glomerular capillaries, causing hypoproteinemia (primarily hypoalbuminemia) which results in hypovolemia. Physiologic compensation follows and salt and water are retained via the actions of antidiuretic hormone and aldosterone, respectively. If marked proteinuria continues, especially if a high proportion is globulin, the basement membrane of the glomerular capillaries suffers further injury which may become irreversible. Both viral and bacterial infections may impede the progress of a natural or induced remission, or provoke an exacerbation.

The primary aid of therapy is to block or reverse the reaction causing the increased capillary permeability. Corticoids appear to suppress this reaction, and early in the course of nephrosis induce a complete remission in the majority of cases. Antibiotics control most, and prevent some, of the common bacterial diseases. The viral diseases are best prevented by eliminating unnecessary exposure to groups of people, especially when epidemics are present.

As soon as the diagnosis is confirmed the following program is started:

1. Treatment of any existing infection or the prophylactic use of antibiotics while corticoids are being administered.
2. Thirty-six to forty-eight milligrams of either triamcinolone (Aristocort), or 6 methyl-delta-l-hydrocortisone (Medrol) given in equally divided doses every six hours orally.
3. Potassium chloride, 1 to 3 Gm. given orally per day, although the higher dose is unnecessary with the newer corticoids.
4. A balanced diet without added salt or highly salted foods. A decrease in protein intake may be advisable during and period when nitrogen retention is noted[23].
5. A modified rest program unless massive edema is causing considerable distress.
6. Abdominal paracentesis or thoracentesis if severe respiratory difficulty or infection is suspected.
7. Continuation of this program until complete chemical and clinical remission occurs. If at the end of four weeks no remission has occurred, taper off corticoids in about one week and observe for two or three weeks. If spontaneous remission does not occur, repeat original course.
8. Institution of an intermittent program the week following initial remission and complete tapering of daily corticoids. Dosage for continuing suppression ranges from 12 to 48 mg. of Medrol or Aristocort daily, and is given orally in three divided doses on three successive days of each week. This program is continued for about nine months, following which the tapering-off precedure is begun by decreasing the total daily dose by 4 mg. each week. Prophylaxis with penicillin or sulfa is continued for about one year after proteinuria is last recorded. Routine immunizing procedures are delayed for an additional year. Acute infections are treated with the appropriate antibiotic and the corticoids are cut by about one-third to two-thirds of the total dose during the active infection period.

If signs of relapse appear during the prolonged period of corticoid treatment, the drug is given daily until suppression occurs. Following this, the regular consecutive three day per week program is reinstated. If a relapse occurs months after completion of the one year's corticoid treatment, the same schedule is repeated except that the corticoid is given for a shorter period (three to six months) after suppression is established. If the child fails to respond to corticoids and progression of renal damage is apparent, it may be advisable to try a combination of corticoids and mechlorethamine (nitrogen mustard)[24].

Although a review of our patients managed under this program will be published at a later date, one interesting observation is appropriate to this discussion.* In the corticoid induced remission, it is difficult to know whether a complete remission or simply suppression of activity exists. The sedimentation rate is a useful indicator of activity, and is frequently an aid in determining the duration and intensity of corticoid therapy[33a]. Unfortunately, its alteration with commonly occurring acute infections occasionally interferes with the reliability at a time when such an indicator is sorely needed. For this reason we are making simultaneous determinations of the Weltmann serum coagulation band (C.B.)[25]. Nephrosis is one of the rare conditions associated with a C.B. of 0 (the normal being 6). In the presence of acute upper respiratory and streptococcal diseases, the C.B. usually is 4-5 and 3-4 respectively. Thus far our experience suggests that the Weltmann reaction is more reliable than the sedimentation rate in those uneasy moments when a nephrotic patient in remission or in a period of corticoid suppression suffers an acute infection, during which an elevation of the sedimentation rate and a transient appearance of slight proteinuria occurs.

A further value of the Weltmann reaction is illustrated in the following two cases. The first patient was a child admitted with edema, hypertension, proteinuria, and gross hematuria, with red blood cell casts. The marked edema and proteinuria led us to suspect nephrosis. Her blood chemistry values and a Weltmann reaction of 0 confirmed the diagnosis of nephrosis. The second was a child with apparent acute glomerulonephritis whose blood chemistry values were consistent with nephrosis. His Weltmann reaction was 4. His blood chemistry levels returned to normal in three weeks and the nephritis has been completely resolved.

Twenty of our most recent patients are being treated with either Medrol or Aristocort†. Other than the appearance of some moon facies and changes in temperament (somewhat irritable either while on or off the drug in the consecutive three day per week program), no complications have required the discontinuance of either drug.

Two of our patients continue to show intermittent proteinuria several months after corticoid withdrawal, although no other signs of nephrosis are apparent. Further testing revealed both to have orthostatic proteinuria. Whether this condition antedated the nephrosis or is similar to the transient post-nephritic orthostatic proteinuria[26], or is a residual effect of nephrosis is not answerable at this time.

Pooled figures reveal that four years after the onset of nephrosis, 60 per cent of the patients treated in the immediate precorticoid period were alive, whereas slightly more than 75 per cent of those treated with corticoids were alive[27]. This difference points out that at least the nephrotic patient has a higher immediate survival rate. Further observations are also encouraging:

1. Chemical remission is induced with successful corticoid treatment as mentioned earlier (recently reviewed)[28].
2. Serial studies of renal biopsies with a light microscope reveal a histologic improvement with corticoids[29].
3. Similar studies with electron microscopy demonstrate the histologic disturbance returns to normal[30].

In addition, current therapy decreases the need for prolonged hospitalization formerly required for episodes of massive anasarca, which was so distressing for both child and family. As long periods of bed rest at home are no longer routinely necessary, the psychologic gains for all concerned are immeasurable. The majority of these children are of pre-school age, and restricting large group contacts is not difficult. Most school authorities make some provision for teaching home-bound children, thus enabling them to keep up with their classes. If the family lives in a city or apartment and cannot conveniently move to a less densely populated area, a visiting nurse can be of considerable help in educating the neighbors to the need of preventing needless contacts of the nephrotic with carriers of infection.

In conclusion, one aspect of overall management should be emphasized. It appears that the earlier current treatment is started, the better the immediate prognosis. Thus, one wonders if, in spite of the low incidence of nephrosis, routine testing of urine is not advisable two or three times each year for all children aged 1-6 years. Such a routine is even more important in a family with one nephrotic patient already under treatment.

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†Medrol supplied by the Upjohn Company. Aristocort supplied by Lederle Laboratories, Division of the American Cyanamid Company.

Adequate explanation to the family should precede such a procedure in order to prevent any undue concern.

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Remarks by Governor Luther H. Hodges At the North Carolina Governor's Conference on Aging

Hotel Sir Walter, Raleigh
Wednesday, July 27, 1960—8:00 p.m.

Mr. Chairman and fellow citizens:

Welcome to this Conference. I commend each of you for the interest in your communities and in your state which you demonstrate by your presence here tonight. You are giving your time and your energy because of your interest in the special problems and needs of our older citizens.

May I emphasize at the outset that I do not assume or believe that the older persons in our state present unusual and special public problems to the extent that we should isolate this particular group from all other citizens, and set them apart from the main stream of our citizenship.

Our governments have certain responsibilities that apply to all citizens, without regard to age classifications. We do know and recognize that some problems are peculiar to particular age groups. Thus, on one occasion, we will need to give particular attention to the public problems regarding the health of all citizens, or regarding the matter of heart disease, or the prevention of tuberculosis. At another time we will need to have conferences to give particular emphasis to the problem of highway safety—which certainly affects citizens of all age groups. At still another time, we find it desirable and necessary to have conferences on such subjects as education, which have tremendous impact on the well-being and progress of all citizens.

I have said all of this in order to attempt to place this particular conference in proper context. I am sure our older citizens would like to have me do this. I think it is important that all of us avoid the erroneous implication that the older citizens of North Carolina present today overwhelming public problems which weigh heavily on the shoulders of all other citizens. At the same time, we know that with the increasing longevity of people in this country we do have an increasing number of citizens who reach the age of sixty-five and over. It is estimated at the present time that there are about 310,000 North Carolinians in the age group of sixty-five and over. While the total population of our State has doubled in the last half century, the number of older people in this particular age group has increased four times during the same period.

This of course means that the elder citizen group comprises a much higher proportion of our total state population than it has in previous years, amounting in 1960 to approximately 6.7 per cent of the total population in the age group of sixty-five years and older.

The increase in the numbers in the older population group has been particularly rapid during the past decade, and during the past ten years the increase in this particular age bracket has been 37.5 per cent, compared with a total state population increase of approximately 11 per cent.

This State Conference is of course a prelude to a National Conference which is scheduled to be held in Washington, D. C., in January 1961. The Conference here this evening has been organized and planned by a group of fifteen persons whose professional activities include special knowledge of services to the older group of our population. These fifteen persons are members of the North Carolina Governor's Coordinating Committee on Aging which I appointed in the fall of 1956 and to whom I wish to express at this time my personal appreciation for the service they have rendered the State as members of this Committee.

At the time I appointed this special Committee in 1956 I asked them to accept the responsibility of (1) reviewing current activities within North Carolina to meet any special needs or problems of the increasing number of older citizens; (2) to evaluate growing special needs and to suggest measures by which these special needs or problems might be met; (3) to report from time to time on matters in this particular area.

Some time ago the United States Congress enacted legislation calling for the 1961 White House Conference on Aging. This Conference here tonight is a part of the activity and planning taking place in all states and we hope that this particular Conference will

serve at least two major purposes: (1) to help us in North Carolina better understand the problem of this area and to help us determine the best course of action we can pursue within our own State during the coming months and years; and (2) to develop findings and recommendations which can be passed on to the National Conference thereby made available to the Nation as a whole.

I am sure each of you will agree with me that you have in this Conference a very considerable task in really coming to grips on these matters and really achieving the desired purposes of this Conference. I know that you share with me the hope and the confidence that this Conference will not be just another meeting at which many persons come together for pleasant but rather general discussions, and at the conclusion of the meeting disperse to their respective homes and occupations without much information or inspiration.

I am informed that tomorrow those attending this Conference will divide into eight groups and each group will give particular study to a different but important area of interest relating to the over-all subject of the aged. I would like to comment just briefly about these particular topics which you will be discussing in detail on tomorrow.

Research and Population

One of your groups will give attention to the topic of research and population. I know that you will be pleased to learn that there are important research activities going on at the present time at North Carolina State College with particular emphasis on our rural population. And the Duke University Center on Aging is making good progress in the promotion of research, the training of investigators and the development of scientific knowledge in the field of aging. Undoubtedly there are more examples of such activity in our State and I hope these will be brought out in your discussions tomorrow. Most of us in North Carolina need no selling as to the importance of research, whatever the subject matter under consideration. We are research-minded; we are research-enthusiasts; and we are research-committed. Also, we do not permit ourselves to be restricted to orthodox research activity in graduate schools of educational institutions. We don't hesitate to stride forward and make a bold venture into a completely new arena of research activity. I have reference to the Research Triangle, of which I am sure all of you have heard, and which represents in its opportunity for the promotion of industrial research a beneficial partnership between the industrial laboratory on the one hand and the academic laboratory on the other.

Another one of your special topics tomorrow will be entitled *Income Maintenance and Employment.* In what is perhaps less sophisticated language, this topic deals with the personal incomes of our older citizens or whether they have sufficient income to get along. As you well know, much of my interest and energy have been tied up with the income improvement of all North Carolina citizens.

Increasingly, in recent years, our State employment offices have given more attention and made more effort to educate people and particularly employers on the potential advantages in reducing hiring restrictions which are based on age. The first step in this process was to give some education attention first to the personnel of the 54 local Employment Security offices. An employment counsellor has had the advantage of some specialized training.

According to statistics which I saw a few days ago, during the past two years our State Employment offices have had 52,000 new applicants over 45 years of age who have filed applications for employment. Of this 52,000 persons over 45 years of age, more than 38,000 have been placed in gainful employment. Many of these were in addition to being older citizens physically handicapped in some way. If you make a quick calculation, you would ascertain that of the total number of applicants processed by the State Employment offices during the past two years, in the age group 45 or older, some 16,000 applications still remain in the active files, and so far as the statistics indicate, this is a problem group of citizens who have expressed a desire to secure employment but who apparently have not done so. Of course, we can assume that many in this group of 16,000 did in fact secure employment or had some change in their situation which would remove them from the active application list but who did not report this change in their status to the Employment offices. Many older citizens have a problem of getting jobs be-

cause of the employment "age policies" of various firms and agencies.

Another aspect of the topic relating to income has to do with the matter of retirement pay. The Social Security program is the most important and most effective system of retirement reaching the mass of our citizens. During recent years Social Security benefits have been improved, the retirement systems of our state government and in many instances the systems of local governmental units have been coordinated with Social Security, a development which has been of particular benefit to older citizens whose retirement was imminent. During recent years retirement benefits under our State system have been improved substantially. Teachers or State employees retiring now are receiving more than twice (and sometimes three times) as much as they would have received prior to 1955.

A third aspect of this income topic deals with that fairly large number of elderly citizens who are not employed and who are not physically capable of engaging in productive employment. Neither are many of the persons in this group participating in any retirement system, Social Security or otherwise. Or if persons in this group do have retirement type income, it generally consists of minimum Social Security payments which are inadequate to meet minimum day-to-day living needs. For these older citizens who are not employed, and who have inadequate income from retirement or other sources, they must rely on payments from public funds under the welfare program. I am hopeful that the welfare payments of the State in the future will be increased as the income of the State increases.

Perhaps by some time in the decades ahead we will have reached the point where practically 100 per cent of all citizens who have reached the age of 65 and older will have participated in far more complete and effective retirement systems during the years of their gainful employment so that when they get to the age of retirement, their retirement compensation will be at comparative levels far above that which is now generally available, whether under Social Security or other retirement systems, and perhaps the time will come when the number of older citizens requiring direct welfare assistance will be much less percentage-wise than what we have in this day and time.

Still another topic which some of you will consider tomorrow will be the subject of health and medical care for the aged. I will not attempt at this time to go into detail as to what is done presently under governmental programs or as to what is currently under consideration and what we may foresee perhaps in the near future. Much is being done today that was not being done twenty years ago. There are some obvious needs today which demand organized action which can only come through the agencies of our government. Exactly what programs should be adopted for the future is a matter involving some considerable differences of opinion and will be discussed in the coming political campaign. Whichever way these specific questions are resolved, I am confident that within the next few years our Nation as a whole will in fact make great progress in providing better and more adequate health and medical care for the older citizens of the Nation, as the problem is becoming more acute every year.

In the meanwhile, with regard to medical aid and other kinds of aid and needs, is it too much to hope for to feel that children and close relatives of our older citizens will show more interest and become more helpful personally than many are now doing? Impersonality and institutionalizing leave much to be desired in appraising the future of our older citizens who find themselves in need.

Other items which will be considered at the topic of social services which are available to our older citizens, including special activities by family service agencies, Red Cross chapters, mental hygiene clinics, as well as local departments of public welfare; and the topic of housing and living arrangements which cannot, I think, be isolated and dealt with in a vacuum apart from the other specific subjects I have mentioned. Then, there is the topic of education. It is especially good that there is a growing emphasis on encouraging older citizens to participate in organized adult education activities. We really never get too old to learn and the older citizens, no less than young citizens, have a richer and more meaningful life if their minds are occupied and stimulated by individual educational endeavors. An important facility in organized educational activities for older citizens are the libraries of the State, which will also be a separate topic for your discussion.

Recreation, family and community relationships, religion, and personnel round out the list of specialized topics for your discussion.

I would like to close my remarks on substantially the same theme with which I began, and that is we should not make the mistake of proceeding on the assumption that the older citizens in our population are somehow a physically separate group which stands apart, which stands even outside the main stream of society. As a matter of fact, our older citizens are composed of parents and grandparents who live in our homes and who work in our communities, citizens whom we see at church on Sundays, as well as citizens who may be restricted to their homes by ill health. This group also of course includes those who are in institutions or nursing homes. Certainly, for the most part, the group of older citizens in North Carolina are an integral and inseparable part of our total citizenship group. I think then that to the extent that we develop effective ways and means to enable older citizens meet their own problems, whether financial or otherwise, and to do this in a way which maintains them as integral parts of our community, maintaining the thread of family relationships and community relationships, then we shall be more successful in our efforts on behalf of the older citizens.

This Conference has a great opportunity to make a significant contribution in the public interest, and I wish you every success.

The Health and Adjustment of the Aged Person

EWALD W. BUSSE, M.D.
DURHAM

I am pleased to have an opportunity to share ideas with the participants in this conference. I know that the citizens of North Carolina are sincerely interested in the problems of elderly people, and are determined to do their part to help solve these problems. When I talk to representatives of national organizations and officials of the federal government, I am proud to tell them that I come from North Carolina, because these informed lay and professional people are aware of the progress our state has made in the field of aging. Under the able leadership of many of the persons gathered here today, North Carolina will continue to be in the forefront of states seeking to solve the many health and social problems that confront our elderly citizens.

The Meaning of Health

According to the constitution of the World Health Organization (WHO), drafted in 1946, "Health is a state of complete physical, mental, and social well being and not merely the absence of disease or infirmity." This definition represents an ideal, a state of perfect health. If it were rigidly applied as a measuring device, there is probably no living person who would qualify for any reasonable length of time as being healthy. This definition recognizes that health is a composite state, involving the mind and the emotions, as well as the body.

If we could eliminate all disease from a group of people 60 years of age or older, would they really be healthy? Probably not, according to this definition. Even in the absence of disease, they would have many social problems which would, in turn, produce mental conflicts. In addition, they would be affected by the biologic problem of primary aging. Most people doing medical research in the field of aging distinguish between *primary* and *secondary* aging. Secondary aging refers to the loss of function which results from a disease process, while primary aging is a process in itself—a process of change resulting solely from the passage of time. In the human organism, unfortunately, the changes wrought by time are often associated with declines in function: alterations of perception, reduction in speed, diminution in strength, and so forth.

In WHO's definition of health, the idea of *adjustment* is contained in the words "social well being." When health is conceived as such a complex state, it is obvious that physicians are not capable of carrying out

Delivered at the Governor's Conference on Aging, Raleigh, July 28, 1960

From the Department of Psychiatry, Duke University Medical Center, Durham, North Carolina.

all the functions necessary to make people healthy. Physicians are trained to be interested primarily in the person as a biologic unit. The physician who recognizes that the mind and body are inseparable parts of this total biologic unit, and that the environment in which this unit functions determines many of its reactions, will necessarily be interested in society—that is, in the effect of the environment upon the health of the individual. Medical research can help to identify the types of social stresses that are apt to disrupt the functioning of the individual, and the physician can recommend alterations in social patterns which will reduce such stresses; but in our democratic system *society* must provide the means and methods of making the environment favorable.

Sometimes groups within our society take it upon themselves to alter the social environment without a reasonable basis for such action. There are some, for instance, who believe that a society in which things are "easy" is conducive to health—that is, that an individual's health and happiness are in inverse proportion to the amount of effort required for him to live. According to their theory, an easy life is less stressful. Unfortunately (or perhaps fortunately), this theory does not hold true. The biologic unit has certain energies that must be expended. When the expenditure of such energies is prevented, they are stored up and produce a powerful force which, if not properly released, can be very destructive to the body and to the mind. In my opinion, all people have a need or a drive to maintain self-esteem by contributing to the lives of others as well as to their own. If life is oversimplified, the opportunity to utilize energy in maintaining self-esteem may be restricted. A society which says to its citizens, "Take it easy; don't work. We will take care of all your needs," can destroy the only outlet that many people have for their energies, and thus lead to their illness and death. Medical science knows that people can die when they feel they have no purpose for living and no goal in life.

Factors Influencing the Life Span

Longevity is determined by a number of factors. Attempts have been made to demonstrate that the life span of mammals is related to body size: the larger the animal, the longer the life span. This theory breaks down when one considers the relatively short life span of cows, horses, and even elephants (90 to 100 years) as compared to that of man. On the assumption that aging begins with maturity, it has been postulated that the theoretical life span of a species can be calculated by determining the age at puberty and multiplying this figure by a constant (13). This hypothesis works out reasonably well for calculating the life expectancy of a mouse or a rat; but if man's adolescence is assumed to begin between 13 and 16 years of age, the expected life span of human beings would be 169 to 208 years. On the basis of this theory, many people have speculated that man's life span can be and should be greatly prolonged.

Other calculations of life expectancy are based on the ratio of brain weight to body weight, the length of gestation, the metabolic rate, and the pulse rate. Rough correlations exist for each of these variables, and provide interesting bases for speculations.

From recent experiments, it appears doubtful that a fixed life span exists for any particular animal. Immature rats kept on a diet adequate in the essential elements and vitamins, but deficient in calories, are delayed in growth and maturation. The average life span of these rats is considerably greater than that of rats given a diet sufficient to enhance growth and the onset of puberty.

While it is obvious that genetic factors influence longevity, much more information is required before their influence is completely understood. An example of some of the puzzling facts that have been uncovered is the finding that the life span of succeeding generations of rodifers, a small aquatic animal made up of approximately one hundred cells, can be greatly increased by selecting eggs from young mothers to propagate each generation. When eggs from old mothers are used, the life span declines sharply. In this experiment, at least, parental age is an important determinant of the life span. When eggs from the mother with a shortened life span are utilized *while she is still young*, the offspring will have normal longevity. This finding is taken as evidence that the shortened life span is not caused by a gene mutation. Apparently a hereditary but nongenic factor is responsible.

The influence of genetics on the human life span is difficult to evaluate. It does appear, however, that reasonable predictions of an individual's life expectancy can be made by utilizing a factor referred to as the

"total immediate ancestral longevity"—that is, the sum of the life span of his two parents and four grandparents. It should be made clear that at present we know of no gene responsible for extension of the life span, but do know that genes which increase susceptibility to malfunctioning and disease may shorten the life span.

Our present knowledge of the factors influencing longevity may be summed up as follows:

1. Life span appears to be related to rate of growth; accelerated growth is followed by accelerated aging.
2. It can be correlated to a reasonable extent with the ratio of body weight to brain weight, and with metabolism, heart rate, duration of gestation, and other physiologic factors.
3. It is influenced by the age of the mother and the life span of ancestors. While the hereditary determinant is largely nongenic, life-shortening genes may be passed on through successive generations.

The Aim of Medical Research in the Field of Aging

With advancing years, all of us become more subject to multiple ailments that interfere with interpersonal relationships, decrease employability, and necessitate prolonged periods of bed rest or hospitalization. Scientific advances have made it possible for a high percentage of our population to reach old age. This is surely a worth-while achievement, but it is now the responsibility of science and of society to improve the health status of our old people, so that they can contribute to society instead of becoming an excessive burden which seriously disrupts our way of life.

Public Health Monograph No. 30, published in 1955 by the United States Department of Health, Education, and Welfare, indicates a clear correlation between age and the frequency of different types of illnesses. Above the age of 45 years, three diseases—mental illness, heart disease, and arthritis—were, in that order, responsible for most of the disability measured in terms of *days lost from work*. After the age of 65, heart disease and arthritis were the leading causes of disability. In terms of *days in bed*, diseases of the heart led the list of disabling illnesses, being followed by nephritis, malignant neoplasm, and cerebral hemorrhage, embolism, and thrombosis. The two major causes for prolonged *hospitalization* were (1) diseases of the heart and (2) mental and neurologic diseases.

The incidence of various chronic diseases differs in the two sexes. Hospital admissions because of cerebral arteriosclerosis, for example, are more frequent among men, while senile dementia is a more frequent diagnosis in women for whom hospitalization is required. On the other hand, the four major causes of death are the same for both men and women past 65: (1) diseases of the heart, (2) cerebral hemorrhage, embolism, and thrombosis, (3) all malignant neoplasms, and (4) hypertension and arteriosclerosis.

In an effort to minimize or prevent changes associated with aging, and to eliminate diseases which reduce a person's power to think, feel, perceive, and respond, medical research is being directed less toward merely prolonging life and more toward increasing and maintaining the functioning efficiency of the mind and body. If this aim can be accomplished, more and more elderly people will be able to meet their own needs and to fulfill a meaningful role in society.

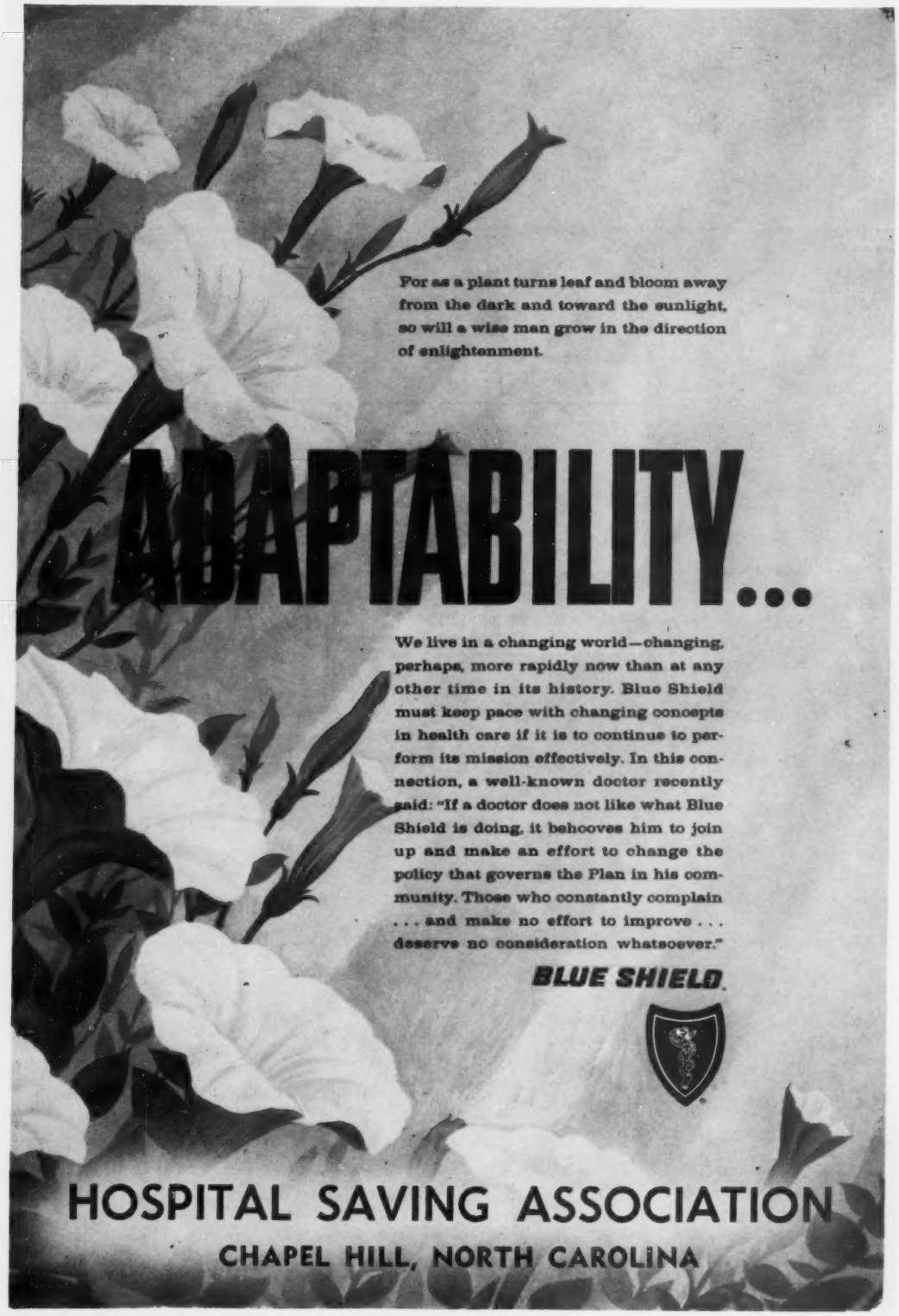
One of the first steps necessary in this program of research is to separate *disease* processes from the aging process *per se*. Atherosclerosis, for example—a condition that until recently was attributed to the aging process—is now known to be a metabolic disorder not necessarily related to aging, but affected by hereditary determinants and a host of other influences.

Medical Problems Created by Our Aging Population

Since the turn of the century the average life span in our country has been greatly increased. The remarkable decline in the death rate of infants during the past 50 years accounts for the fact that while the population of the United States has doubled, the number of persons over the age of 65 has quadrupled. There are between 15 and 16 million people in the United States above 65 years of age. By 1970 this number will be increased to approximately 20 million.

Increasing incidence of chronic diseases

Unfortunately, this remarkable increase in life expectancy has been accompanied by an increase in the number of individuals disabled by chronic disease or confined to a bed or an institution. More than one mil-


For as a plant turns leaf and bloom away from the dark and toward the sunlight, so will a wise man grow in the direction of enlightenment.
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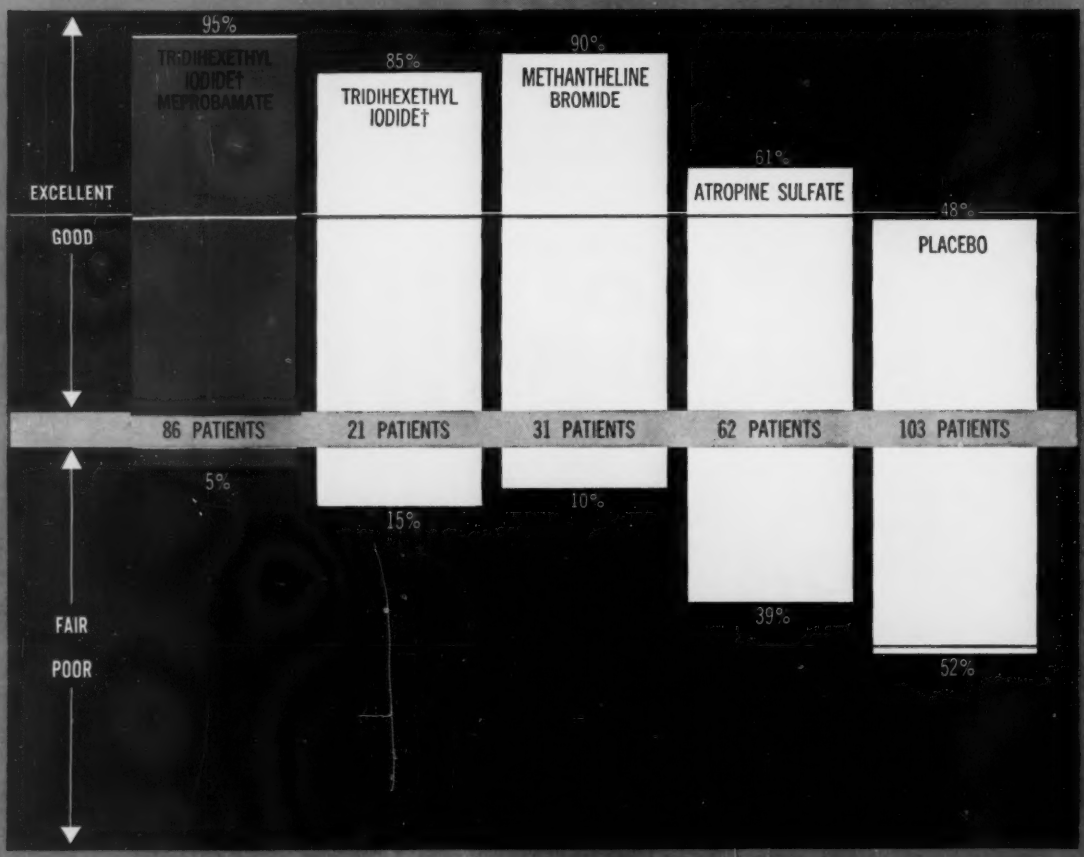

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DRY MOUTH	1%	5%	72%	46%	5%
STOMATITIS	1%	0%	28%	14%	0%
VISUAL DISTURBANCES	0%	0%	50%	34%	1%
URINARY RETENTION	0%	0%	18%	11%	1%
DROWSINESS	20%	0%	0%	0%	0%
COMPLICATIONS OR SURGERY					
HEMORRHAGE	0%	9%	3%	9%	10%
PERFORATION	0%	0%	0%	6%	0%
OPERATION	0%	5%	5%	14%	2%
RECURRENCES					
NONE	20%	23%	25%	17%	26%
FEWER AND MILDER	67%	62%	52%	37%	24%
SAME OR MORE	13%	15%	23%	46%	50%

*Atwater, J. S., and Carson, J. M.: Therapeutic Principles in Management of Peptic Ulcer. Am. J. Digest. Dis. 4:1055 (Dec.) 1959.

†PATHILON is now supplied as tridihexethyl chloride instead of the iodide, an advantage permitting wider use, since the latter could distort the results of certain thyroid function tests.

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			Annual Premium	Semi-Annual Premium	Annual Premium	Semi-Annual Premium
5,000	5,000 to 10,000	50.00 Weekly	$ 78.00	$ 39.50	$104.00	$ 52.50
5,000	7,500 to 15,000	75.00 Weekly	114.00	57.50	152.00	76.50
5,000	10,000 to 20,000	100.00 Weekly	150.00	75.50	200.00	100.50
5,000	12,500 to 25,000	125.00 Weekly	186.00	93.50	248.00	124.50
5,000	15,000 to 30,000	150.00 Weekly	222.00	111.50	296.00	148.50

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lion elderly people are now confined to hospitals. Although the age group over 65 comprises only 8 per cent of the population, it uses 18 per cent of the general hospital beds and 80 to 90 per cent of the nursing home beds.

The National Health Survey made in 1957 revealed a definite relation between age and the amount of time spent in bed or lost from work because of either acute or chronic disorders. A "restricted activity day" was defined as a day in which the customary activities were restricted for the entire day because of illness. A person was considered to have a day of "bed disability" if he spent all or most of the day in bed because of illness or injury. A day spent in the hospital was counted as a day of bed disability, whether or not the individual was confined to bed. The survey revealed that the annual number of days of both restricted activity and bed disability increased progressively with age (table 1).

Table 1

Age Group	Average Number of Days Lost Per Year	
	Restricted Activity	Bed Disability
25-44	14.2	4.6
45-64	21.1	6.4
65 plus	44.4	15.4

According to the same National Health Survey, the incidence of acute, disabling conditions declines throughout life, while the number of chronic diseases steadily increases. Consequently, there is an increasing need for medical facilities to care for the *chronically ill, long-term patient*, who does not require the expensive diagnostic and therapeutic equipment nor the intensive nursing services and specialized knowledge found in the general hospital. It is extremely important that steps be taken to fill the gap between the home and the general hospital by providing facilities for convalescent or chronically ill patients.

The Cost of Illness in Our Aging Population

The cost of illness among our aging population, both from the individual's viewpoint and from society's viewpoint, is nothing short of frightening. When I employ the word *cost*, I am not only referring to the financial cost, but am also thinking in terms of individual happiness and loss of social functions which in my opinion are equally crucial to the maintenance of our democratic way of life.

Report No. 20 of the United States Department of Health, Education, and Welfare, dealing with health costs of the aged, gives factual data that document the magnitude of the loss produced by illness in our aging population. In 1951 a nationwide survey of beneficiaries of old-age and survivors insurance disclosed that 31 per cent of all the beneficiaries surveyed were confined to bed by illness at some time during the year covered by the survey. Forty per cent of these patients spent more than four weeks in bed, either at home or in a general hospital or some other type of institution. Three and a half per cent of all the beneficiaries covered by the survey were completely bedridden, and one in seven required considerable assistance from others.

In Rhode Island a study was made of elderly citizens who were living outside of institutions. Forty-six per cent reported themselves as either being in poor health or having serious physical handicaps.

Health Insurance and the Problem of Motivation

In view of the high incidence of disease and disability in our elderly citizens, it is not surprising that the question of federal health insurance for the aged is one of the most vital social and political issues facing the United States today. In speeches and articles concerned with health insurance for elderly people, the words "comprehensive," "adequate," and "minimum" are used without clarification. The interpretations given such words may have considerable political value, but are not necessarily consistent with the actual medical-social situation. The two words *comprehensive* and *adequate* have a reassuring quality, but defining them is difficult. An "adequate" program of health insurance, for instance, can be interpreted to mean sufficient funds to cover the cost of *all* required medical care, or merely to *help* meet the cost of such care. An additional complication is the fact that medical costs are not consistent throughout the United States, and that the climate and living conditions frequently affect the decision for hospitalization, which increases the cost.

"Adequate" can also be used to imply a standard of medical care. Lack of manpower, facilities, and funds makes it impossible to provide the very *best* medical care for all our citizens. Clearly, "adequate" medical

care means less than the very best—but how much less?

The other word, *comprehensive*, recurs in all discussions regarding health insurance plans; but if we are to adopt the World Health Organization's definition of health—"a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"—where does a comprehensive program of health insurance terminate?

Because of these difficulties in defining words, some people have learned to speak with caution. For example, Senator McNamara of the Senate Subcommittee on the Problems of the Aged and the Aging has said, "A program of comprehensive health insurance is required to meet the minimum health needs of the retired aged." The word *minimum* has a warning quality, but it is a more realistic word than *comprehensive* or *adequate*. Much effort has gone into attempts to define a minimum health program, but these attempts are frustrated by our lack of actual knowledge. Until we know what is really needed, it would be foolish and expensive to commit ourselves firmly to a rigid, long-term program of health insurance.

I wish to emphasize one basic factor which must be considered in the treatment of any illness, and is of utmost importance in the care of patients with chronic diseases. This basic factor is *motivation*—the desire within the individual to overcome his pain, limitations, and disabilities, in order to return to or achieve a position of personal and social independence.

Motivation is both a conscious and an unconscious psychologic phenomenon. Paradoxically, motivation that is consciously expressed can be in direct opposition to what is going on in the unconscious. Motivation is affected by certain forces within the individual and in the environment—forces that are bound to physical and personal needs, as well as to gains and losses. These gains and losses are related not only to the physical status of the individual, but also to his environmental and social circumstances—including, of course, his financial situation. In our society the striving for financial security and the attitudes which it develops form a part of motivation, and as such can affect the duration of hospitalization, enthusiasm for rehabilitation, length of convalescence, and request for medical care. All too often the desire for financial security can interfere with the incentive to get well. When illness provides a secure, dependent relationship, it is very hard for some individuals to work actively toward an independent existence.

From a medical standpoint this social attitude is unfortunate, but it must be faced. The experience of the Veterans Administration has clearly demonstrated that free medical care and disability pensions seriously interfere with motivation and prevent many patients from achieving a state of maximal functioning. Apparently for political reasons, very little has been done to educate the public concerning this situation, or to alter the situation itself.

Any plan to provide for the medical needs of the aged should take into consideration not only the most efficient methods of collecting and distributing funds, but also the importance of maintaining motivation. Fiscal policies should be secondary to this consideration. A program that interferes with motivation will prevent the health professions from achieving the goal we all wish to reach—better health for our elderly citizens. If we can achieve this goal, we will have a stronger nation.

Experience in the management of these patients who have successfully passed through an attack of cardiac infarction endorses the view that it should become a recognized procedure to direct the patient back to his work after he has rested for a month and convalesced for a second month. That no undue risks are incurred from the adoption of this practice has been proved by inquiry about the physical activities engaged in at the time of the initial attack or subsequent ones. In the great majority of cases the illness set in either at rest or while undergoing habitual easy exercise, and only exceptionally during unaccustomed heavy exertion.—Evans, W.: Faults in Diagnosis and Management of Cardiac Pain, Brit. M.J. 1:253 (Jan. 31) 1959.

Experiences in a Glaucoma Detection Clinic

CHARLES W. TILLETT, M.D.
CHARLOTTE

The purpose of this presentation is to relate the experiences of 10 ophthalmologists* in Charlotte in setting up a glaucoma detection clinic.

Glaucoma is the leading cause of irreversible blindness in adults in this country. Surveys have shown approximately 2 out of every 100 individuals over the age of 39 have the disease.

In its early stages, when it is most susceptible to treatment, the symptoms are few or non-existent. In its advanced stages, when the visual difficulties are all too prominent, treatment can only halt the progress of the disease. No known method of therapy can restore vision or visual field lost as a result of the increased intra-ocular pressure and its consequent damage to the optic nerve. It is thus extremely important to detect the disease early.

The starting point is in the physician's office. The use of routine tonometry in all patients over the age of 35 has become standard practice with the majority of ophthalmologists. But some patients are slow to seek eye care and some are treated by non-medical refractionists. These patients may acquire the disease undetected, reaching the ophthalmologist after the loss of vision has set in.

A glaucoma detection clinic focuses public attention on this important disease and permits the screening of a large number of individuals. Adequate publicity is an important factor in the success of such a clinic. The local medical society can help by such means as informative articles in the newspapers, small posters in drug stores, and spot announcements on radio and television. There is available from the National Society for the Prevention of Blindness an excellent 20-minute film on glaucoma, "Hold Back the Night", which can be shown to civic groups. Emphasis is placed on individuals 40 years of age and older, and those with a family history of this condition.

*Participating eye physicians were Drs. Reed Gaskin, Thomas D. Ghent, Walter Graham, M. J. Hough, Ruth Leonard, Marvin Lymberis, Henry Sloan, Jr., David Stratton, Jack Thurmond, and Charles Tillett.

The physical location of such a clinic is of some importance. It is desirable to have at least two examining tables and reasonably large waiting room facilities so that a large number of patients can be seen. Where a number of individual ophthalmologists are practicing in a community, it is desirable to locate the clinic where it is not specifically identified with any individual or group. Charlotte eye physicians have been fortunate in having available the facilities of the emergency outpatient clinic at the Mercy Hospital. More recently the city-county health department building has been utilized.

Personnel is another important factor in the success of such a clinic. Our medical auxiliary has been of considerable help in the registration of patients, preparing small 5 x 7 inch cards for each patient's name, age, and address. The National Society for the Prevention of Blindness has chapters in a number of communities throughout the state, and their assistance has been invaluable in operating our clinic and in follow-up services. The health department, which has been most cooperative, has provided the services of two nurses at all times. The nurses helped the patients during the examination onto the examining table and down again and instilled pontocaine eye drops, thus enabling us to see many more patients than otherwise would have been possible.

The examination itself consisted of measuring the tension in each eye with a tonometer and in performing an ophthalmoscopic examination. Any patient with a tension of 24 mm. of mercury or higher was advised to see an ophthalmologist, as were patients in whom ophthalmoscopic examination revealed abnormal cupping of the optic nerve even though the tension was normal. Other patients, found to have cataracts, macular disease, retinopathy, or other eye diseases, were likewise advised to see a specialist.

The manner of scheduling a glaucoma detection clinic has varied in different parts of the country. In some communities the clinic has been held during one full day. In

others, various industrial plants have been screened. Our particular clinic was held for a full week, with hours from 9:00 A.M. to 5:00 P.M. Monday through Friday. Each of the participating physicians contributed at least half a day, and many contributed additional time when the case load required it. With the help of the nurses and others it was possible for one examiner to see as many as 30 to 40 patients an hour at peak hours. On a few occasions when the case load was greater than could be handled, ophthalmoscopic examination was omitted and 60 or more patients per hour were seen per examiner.

Results

Clinics have been held in three successive years. Seven hundred patients were screened in the first year and 800 in the second. This number increased to 3,000 in 1959. The patients were predominantly in the 40 or older age group.

In the first two years 4 per cent of the patients had an elevated tension. Statistics on the most recent clinic (1959) indicate that 4.5 per cent of the patients (135 out of 3,000) had an elevated tension. Although follow-up data are not complete, it is estimated that half of these patients proved to have glaucoma. Clinics of this type elsewhere in this country have had similar results.

Summary

1. A week-long glaucoma detection clinic has been held three successive years by ten eye physicians in Charlotte.
2. The total number of individuals screened increased from 700 in 1957 to 3000 in 1959. These patients were predominantly over the age of 39.
3. Approximately 4 per cent of patients tested showed an elevated intra-ocular tension. It is estimated that half of these, or 2 per cent of the total, proved to have glaucoma.

SPECIAL REPORT

ANALYSIS, REVIEW, AND EVALUATION OF CLINICAL PRACTICE IN THE HOSPITAL

RESPONSIBILITY

Only physicians are capable of judging what is or what is not good medical practice. Patients and hospital personnel may learn to recognize good practice, but only the physician can accurately evaluate its quality.

The opinions of individual physicians vary and rightly so. For that reason, the Commission places heavy emphasis on group participation in evaluating clinical practice. It is the responsibility of the entire Active Medical Staff to analyze, review, and evaluate the clinical practice in the hospital and to insist on high standards of performance from each of its members.

This responsibility is not easily discharged. It requires hours of work which the busy physician can ill afford to spend and which is usually done at the expense of his personal pleasures. It requires an objectivity which is perhaps even more difficult to achieve. To judge the work of a colleague on a fair, unbiased, impartial level calls for the intelligence and wisdom of a Solomon. That this is so well done in thousands of hospitals can be attributed to the integrity, effort, and persistence of each member of the medical staff.

ESSENTIALS

In order to evaluate clinical practice the following are essential:

1—Reliable Medical Records

There must be evidence on the medical record that the diagnosis was made on the basis of information given by the patient in the history, a careful physical examination, and a scientific interpretation of the findings. There must be sufficient data recorded to justify the physician's treatment of the patient and the results. For the sake of both the group whose responsibility it is to review the record and the physician whose performance is being evaluated, a good medical record is indispensable.

2—Reliable Reports of Diagnostic Tests

The physician must rely on the accuracy of reports on laboratory and diagnostic tests. The medical staff cannot supervise all these areas, but it has a responsibility to make certain that there is supervision. This is done by recommending the appointment of qualified individuals to head these departments and to designate those on the staff qualified to interpret electrocardiograms, x-rays, and other diagnostic tests. If laboratory work is done outside the hospital, it must be made certain that these laboratories are government approved, licensed, and under the direct supervision of a pathologist.

3—An Organized Medical Staff

To insure a continual orderly process of evaluating clinical practice the medical staff must be formally organized. This provides a framework in which duties and functions of the staff can be carried out. The medical staff may decide to delegate the responsibility of clinical review to committees, to clinical departments, or to the staff as a whole. Only the individual medical staff can determine the method which will be most effective in the local situation.

4—A Competent Medical Staff

Though listed fourth, the most important factor in evaluating clinical practice is a competent medical staff. The quality of medical care in the hospital is in direct ratio to the knowledge, experience, and ability of the members of the medical staff. The judgment necessary to evaluate clinical practice depends entirely on the ability of those who are doing the evaluating.

This makes the appointment to the staff and the delineation of privileges so important. To do this fairly and objectively, the medical staff should set up a system to evaluate each applicant and determine his hospital privileges on the basis of professional competence. Individual character, training, experience, and ability should be criteria for selection. Under no circumstances should the accordance of staff membership or professional privileges in the hospital be dependent solely upon certification, fellowship or membership in a specialty body or society. Neither should appointments be denied on the basis of hospital bed capacity or selfish competitive motives on the part of the staff.

Although the primary purpose of clinical review is to achieve and maintain high standards of patient care, the process also serves as a means of evaluating the performance of individual staff members. The judgment, ability, and competence of a staff member can be assessed by his methods of diagnosis, his skill in treatment, and his ability to recognize situations which call for consultation. These facts should influence the decision to extend or limit his hospital privileges. Each member of the staff should be given the opportunity to realize his full capabilities, and at the same time safeguards must be established to protect patients. By good clinical review both patient and and staff member profit.

The Commission in accrediting a hospital places great emphasis on the extent and care with which the medical staff reviews and evaluates clinical practice. Since good medical records, reliable diagnostic services, and a competent, well organized staff are essential for good clinical review, these factors are closely surveyed. To be accredited, there must be evidence that the hospital medical staff is living up to its important responsibilities.

/s/ Kenneth B. Babcock, M.D.
Director
Joint Commission on
Accreditation of Hospitals

Report from The Duke University Prison Control Center

JAY M. ARENA, M.D., *Director*
DURHAM

KEROSENE, GASOLINE, AND PETROLEUM DISTILLATES

Kerosene, together with other petroleum products, accounted for more than 100 deaths in 1949-50, a fourth of all fatal poisonings among children under 5 years of age in the United States. Of 252 children admitted to Charity Hospital in New Orleans over a 10-year period for kerosene poisoning —the commonest cause of poisoning among admissions—9 died. The incidence of poisoning from petroleum products, principally kerosene, in 12 Southern states is four times greater than that in other areas. In the South kerosene is extensively used for curing tobacco, heating, cooking, and, in more remote areas, for lighting. This product is often removed from its original container and put into an empty cola bottle, which is often carelessly left about where toddlers do not hesitate to sample it.

Signs and Symptoms

Hydrocarbon ingestion causes symptoms in two organs systems: the central nervous system and the lungs. In addition, it has a direct irritative action on the pharynx, esophagus, stomach, and small intestine, with edema and mucosal ulceration. Depression of the central nervous system occurs soon

after ingestion, followed by severe pneumonitis in a few minutes to several hours. Death, when it occurs, is from pulmonary insufficiency, not the depression of the central nervous system. Histopathologic examination of the lungs shows primarily a severe necrotizing pneumonia. If the patient recovers, no late sequelae are seen. The great seriousness of kerosene poisoning, therefore, lies in the pulmonary damage.

How this damage comes about as a result of swallowing even a small amount of the liquid has been the subject of controversy. One explanation is that the child aspirates some kerosene either directly or in the course of vomiting or gastric lavage. An opposing idea is that kerosene is absorbed from the gut and excreted by way of the lung—but this theory has the defect that kerosene placed in the stomach of experimental animals fails to produce any striking pulmonary injury. Richardson showed that in rabbits 0.25 ml. of kerosene per kilogram of body weight could cause fatal pneumonia when injected directly into the trachea. Thirty milliliters per kilogram was necessary to produce the same effect when instilled by nasograstric tube into the stomach, and since the rabbit does not vomit, it was assumed that the hydrocarbon must reach the lung via the blood stream. If these values can be applied to children, a child weighing 10 Kg. would have to ingest 12 ounces of hydrocarbon to produce a fatal pneumonia if no aspiration occurred, whereas only 2.5 ml. could prove fatal with aspiration.

The clinical picture produced by kerosene is quite variable. Symptoms appear early and consist predominantly of either cerebral depressive effects or respiratory manifestations or, in some children, both at once.

The child may be found coughing and choking, and with the odor of kerosene on the breath or clothing. If some time has elapsed following ingestion, he may be drowsy, stuporous or in frank coma. In one series, 6 of 101 patients were found unconscious; about 50 children had vomited. Fever (sometimes high), tachycardia, and tachypnea develop in most patients. Signs of pulmonary involvement include dyspnea and cyanosis, with rales, rhonchi, dullness and diminished breath sounds at one or both lung bases. Following massive aspiration, pulmonary edema may be marked, and is usually the cause of death. Most patients are acutely ill, but those with slight pulmonary manifestations often recover in 24 to 48 hours. Those with combined cerebral and pulmonary involvement are more acutely ill, and it is among these that cardiac dilatation, transient hepatosplenomegaly and abnormal urinary findings are found.

Roentgenographic changes can be seen within an hour or two of ingestion. At first there are multiple, small, patchy densities with ill defined margins; in more advanced cases the lesions become larger and tend to coalesce. Emphysema may develop. Pneumothorax occasionally occurs. The maximum changes are noted in two to eight hours after ingestion. Among patients who survive, resolution is gradual, the lungs clearing in three to five days, with radiologic signs lagging behind the clinical improvement.

Treatment

Treatment of kerosene poisoning is nonspecific and symptomatic. One or two ounces of mineral or vegetable oil by mouth (if not forced) would tend to prevent the absorption of kerosene as well as hurry it through the intestinal tract. In the presence of pulmonary signs, oxygen is the "most valuable agent" to relieve respiratory distress and anoxia. Antibiotics should be administered in therapeutic doses to forestall secondary pulmonary invaders, even in the absence of overt pulmonary signs and symptoms, since pulmonary involvement can occur without clinical signs. The use of steroids as an anti-inflammatory agent in the treatment of necrotizing pneumonitis has proven to be very effective, and should be used for any severely ill and toxic patient. Appropriate therapy is indicated for fluid and electrolyte imbalance. Attempts to keep stuporous children awake by exercise have no rational basis.

On the basis of Richardson's experiments (see under Signs and Symptoms), as well as of clinical studies suggesting a more severe pneumonia in patients who had spontaneous or induced vomiting with this type of poisoning, it would appear that treatment without lavage or emesis is preferable. Lavage, if used, however, should be done with extreme care. The head and chest should be lowered, copious amounts of water or a 3 per cent solution of sodium bicarbonate or normal saline should be used and the tube pinched off and quickly withdrawn.

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NOVEMBER, 1960

FALL MEETING OF THE EXECUTIVE COUNCIL

The regular fall meeting of the Executive Council of the State Medical Society was held on Sunday, October 2—at the end of a three-day conclave of committees—at the Mid Pines Club at Southern Pines. A tremendous amount of work was accomplished in these three days. The long agenda of the Executive Council concluded with reports of the six commissions, which largely constitutes the summary of membership work and effort of the Society. Most of the committee work was summarized by the chairmen of the commissions in their reports. A few of the more important committee reports were given by the chairmen of the respective committees, in order to lend emphasis and detail to the subject matter involved and studied.

The conclave and Executive Council meeting were well attended. President Amos Johnson was an admirable presiding officer, guiding the discussion skillfully through a long agenda and the handling of the difficult questions which arose.

A matter of greatest interest was the subject of a report of the reactivated committee to study the question of scientific membership, of which Dr. Street Brewer is chairman. The Council unanimously adopted the committee's recommendation re-affirming the Society's stand on scientific membership as now expressed in its Constitution and By-laws, and adopted a motion that the Mecklenburg County Medical Society be asked to clarify its position on membership for Negro physicians. Another motion was also passed that the President, the Secretary, and Mr. John Anderson prepare a form to be used in applying for membership in the Society. It is proposed that applications should read something like this: *I hereby apply for a.....membership in the Medical Society of the State of North Carolina.* The blank would be filled in by one of two terms specified by our Constitution (Article IV, section 1)—Active or Scientific.

Drs. Paul Whitaker and Ben Royal, who were on the original committee with Dr. Brewer, corroborated his statement that the Negro medical leaders who met with their committees five years ago had broken faith with the committee, for they had agreed that the proposed scientific membership was all that they could and did ask for, and that they were well satisfied with it in their proposals. Only two Negro physicians, however, have applied for this membership, and they were both formally castigated by members of the Old North State Medical Society.

Dr. Wayne Benton, chairman of the Committee on Finance, reported that the Society now had a $96,000 surplus and that investments had paid 5 per cent during the past year. So many life members had asked for refunds of their dues that the committee recommended that all who had been listed as life members have their dues refunded. A number of the Executive Council members, however, stated that they did not wish their dues to be refunded—so a motion was passed allowing all life members the privilege of paying dues so long as they wished. Dr. Benton reported that the Building Committee was still functioning.

Both the Committee on Legislation and Chronic Illness recommended that steps be taken as soon as possible for North Caro-

lina to take advantage of the provisions of the Mills Act to provide medical care for its older citizens. A resolution to that effect was passed unanimously, copies of which are to be sent with accompanying letters to Governor Hodges and Dr. Ellen Winston, Commissioner of Welfare.

Dr. Jacob Shuford, chairman of the Committee on Blue Shield, reported that this committee had approved the Hospital Care Association, as well as the Hospital Saving Association, to sell Blue Shield Insurance, but that the National Blue Shield did not approve Hospital Care Association for Blue Shield, because they thought Blue Shield should be managed by a single agency in a given territory or jurisdiction—not overlapping. This committee recommended, therefore, that a corporation of the Medical Society be created to coordinate the efforts of the Hospital Care Association and the Hospital Saving Association, and to control the Blue Shield insurance. The motion was passed unanimously.

Dr. W. A. Sikes, superintendent of the State Hospital in Raleigh, said that some doctors had been too lax in meeting requirements of the law in committing patients to the State Hospital. Although the law states plainly that the doctor shall examine the patient before commitment, some have been prone to sign papers without an examination. Others have been admitted under classification as drug addicts rather than alcoholics, because the drug addict may be kept in the hospital 60 days, the alcoholic only 30. Still another error of omission was to have the patient admitted as an emergency without an examination. Many of these technical violations may result in liability actions later on.

Dr. Oscar E. Goodwin of Apex was elected to fill Dr. Earl Brian's unexpired term as a member of the State Board of Health, terminating in June 1963.

Two medical district councilor vacancies occurred as the result of Dr. Claude Squire's election as president-elect and of the resignation of Dr. Merle D. Bonner of the Eighth District. Dr. Bonner had insisted that his resignation be accepted. These vacancies were quickly filled by promoting the vice-councilors—Dr. Edwin Bivens of Albemarle for the Seventh and Dr. Harry Johnson of Elkin for the Eighth.

Mrs. J. M. Hitch, president of the State Women's Auxiliary, was in Chicago for a meeting, and her husband read her excellent report to the Council, reviewing the activities of the Auxiliary this year. The Auxiliary has taken an active part in emphasizing the American Medical Education Foundation. In this effort the ladies are promoting the sale of Christmas cards. They have been disappointed at the response so far—and hope that their husbands will join them in pushing the sale of these cards. All the profit goes to the A.M.E.F.

The final action of the Council was an evaluation of the conclave method of coordinating activities of the various committees. All present agreed that it was the most satisfactory and efficient method and recommended that it be continued, with the provision that the Executive Secretary and the President-elect be empowered to select meeting places for the Fall Conclave and the Officers' Conference in time to secure suitable accommodations.

* * *

AUXILIARY CHRISTMAS CARDS

The Woman's Auxiliary of the State Medical Society has long been interested in the American Medical Education Foundation. This year the Auxiliary has undertaken the ambitious project of selling Christmas cards as a means of raising money for this worthy cause. Mrs. Loftin H. Harris, chairman of the A.M.E.F. committee, has a goodly supply of these Hallmark cards on hand, to be sold to Auxiliary members for $2.25 per box of 25 cards, and resold for $3.50 per box, or 14 cents a card. The profit is to go to the A.M.E.F.

The cards are really good looking. Two pine cones tied with red ribbon are on the front. On the inside is the traditional "Merry Christmas and Happy New Year" opposite the legend, in small letters, "This card has been selected in the interest of the American Medical Education Foundation." They compare favorably with others that are purely commercial.

The Auxiliary invested a good deal of money in this venture. Since Christmas cards are a necessity at this time of the year, let all good doctor-husbands come to the aid of their wives, and boost the sale of the A.M.E.F. cards.

INFLUENZA IMMUNIZATION URGED

Since the devastating 1918-19 pandemic of influenza there have been annual epidemics of gradually decreasing severity. In 1957-58, however, the so-called Asian strain of influenza was more severe and caused many more deaths than had been the case for a number of years. Surgeon General Burney appointed an Advisory Committee on Influenza Research. This committee found that the lack of resistance and its widespread occurrence caused the high mortality, especially in the chronically ill, the aged, and in pregnant women. As a result of these findings, the Public Health Service is urging a continuous program of immunizing the high-risk groups routinely. The Public Health Service lists the high-risk groups as follows:

1. Persons of all ages who suffer from chronic debilitating disease, in particular: (a) rheumatic heart disease, especially mitral stenosis; (b) other cardiovascular diseases, such as arteriosclerotic heart disease or hypertension—especially patients with evidence of frank or incipient insufficiency; (c) chronic bronchopulmonary disease, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, or pulmonary tuberculosis; (d) diabetes mellitus; (e) Addison's disease.

2. Pregnant women.

3. All persons 65 years or older.

The vaccine advised is polyvalent and the dosage recommended is 1.0 cc. subcutaneously, repeated after an interval of two months or longer. Many doctors prefer a two-week interval, but the committee has given much thought to the longer interval between doses. The committee adds, "Preferably the first dose would be given no later than September 1 and the second before November 1." Unfortunately, the statement was not received in this office until the last of October. It is never too late to do good, however, and the conscientious family doctor should urge his high-risk patients to be immunized as soon as possible. Persons previously immunized with polyvalent vaccine should get a single booster dose each fall—prior to November 1.

Those of us who remember the terrific toll taken by the 1918 epidemic can appreciate the importance of immunization.

The following pharmaceutical houses are licensed manufacturers of influenza vaccine: Lilly, Lederle, Merck, Sharpe, and Dohme, National Drug Company, Parke-Davis, Charles Pfizer, and Pitman-Moore.

DR. JOHN E. DONLEY

The **Rhode Island Medical Journal** reports with sorrow the death, on September 17, 1960, of Dr. John E. Donley, distinguished Editor-in-Chief of the **Journal**, a past President of the Rhode Island Medical Society, and the only Rhode Island recipient of the Dr. Charles Value Chapin Award of the City of Providence.

The **Journal** also announces that the House of Delegates—assembled in meeting on September 28, 1960, elected Dr. Seebert J. Goldowsky as the new Editor-in-Chief of the Rhode Island Medical Journal to succeed the late Doctor Donley. Doctor Goldowsky has been an Associate Editor of the Journal for many years.

John E. Farrell, Sc.D.
Managing Editor

Although Rhode Island is the smallest state in the Union, its medical journal is one of our favorite exchanges. It has consistently maintained a high standard of original articles and of editorial content. Dr. Donley was a worthy successor to the brilliant and lovable Peter Pineo Chase, who died in harness April 23, 1956. Now Dr. Goldowsky has a large pair of editorial shoes to fill—but no doubt will keep the Rhode Island Medical Journal on the same high level as his predecessors. He does not come as a novice, since for many years he has been an associate editor.

The NORTH CAROLINA MEDICAL JOURNAL extends to the Rhode Island Medical Society sympathy in the loss of Dr. Donley, and congratulations on having a capable successor in Dr. Goldowsky.

* * *

YALE SCHOOL OF MEDICINE CELEBRATES SESQUECENTENNIAL ANNIVERSARY

The September issue of *Connecticut Medicine* is devoted to the sesquecentennial anniversary of the Yale University School of Medicine. The celebration is to be held October 28-29. The entire issue of the September *Connecticut Medicine* contains a number of articles dealing with this great school.

The NORTH CAROLINA MEDICAL JOURNAL takes great pleasure in congratulating both the school of medicine and the medical journal—and wishes for both the best of everything in the years to come.

President's Message

Where Does Charity Stop ?

Recently, your State Medical Society, through the unanimous action of its executive Council, adopted the principle of cooperation with state and federal governmental agencies to provide medical care for our indigent and "medically indigent" citizens in the 65 and over age group. This was deemed proper and is in keeping with policies advanced by the American Medical Association. Copies of the adopted resolutions were sent to Governor Hodges, Commissioner of Public Welfare, Dr. Ellen Winston, and other state agencies urging the immediate and total implementation of this Federal legislative action.

The Committee on Chronic Illness, John R. Kernodle, M.D., chairman, is charged with liaison with governmental agencies dealing specifically with implementing this legislation. The Committee Advisory to the North Carolina State Board of Public Welfare, J. Street Brewer, M.D., chairman, as in all matters pertaining to medicine and welfare, will also act in advisory capacity in this proposition.

Presently, North Carolina is not implemented and participant in this federal program. Parts of the program we may participate in without additional state legislation; other and important facets of participation will require new local state legislation. Already, 5 of our 50 states are total participants. Following action by your Executive Council, the State Medical Society has offered full cooperation and support to Governor Hodges and to Commissioner Winston in getting this project immediately under way.

Recently, in discussions between Commissioner Winston and Dr. Kernodle pertinent to this assistance program, a matter of vital importance to all North Carolina doctors was unearthed. This I shall attempt to present to you clearly.

Bluntly, but factually, this issue is—Shall medical services furnished in this state in compliance with the federal legislation be furnished by us "for free," or, shall we receive reasonable payment for services rendered these patients, as a service of the federal and state government, on a vendor payment basis as provided for in this legislation?

Commissioner Winston has given thought to this proposition. I quote from Dr. Kernodle's report of his conference with Commissioner Winston

> She asked whether the doctors were going to change their idea of accepting payment for indigent patients and whether vendor payment schedules should be set up for the doctors. She inquired on the point that doctors had, in the past, offered and likewise had given their services free for all indigent patients.—She then stated that she would hope we would not (request payment) but if we did, she felt that we should also set up a scale for the OAA group.

Now, we are at the crux of this problem. Policies which we set here will be vital to medicine in North Carolina in years to come. The pattern we cut in this instance will be used to "size" us in each instance as this program is inevitably expanded.

As Dr. Winston recognized above, "Doctors had in the past offered and likewise had given their services free for all indigent patients." This is true and, I believe, will remain true so long as the charitable care of these indigent patients remains in its traditional and proper perspective. That is, that they are, in sequence, a responsibility of their family, their community, and then their local governmental agencies. This is an instance of "From him who has, according to ability—to him who has not, according to need." This constitutes basic charity and is good. Under these circumstances we will give amply of our basic commodity, medical care, and of ourselves as a charitable service to our fellow man.

When the responsibility for medical care, among other responsibilities, of the indigent and "medically indigent" is assumed by agencies of the state and federal governments, then the proposition of charity alters its position. These people then become the wards, proportionally equally, of all those who are taxed to support government. To the proposition, "From him who has, according to ability—to him who has not, according to need," now add, "by force," and you see this is no longer charity. This is compatible with the Marxist theory of communism.

As doctors, we are required to pay our proportionate share of taxes just as are all others who earn by their efforts or ingenuity. A proportionate share of the money appropriated to finance this welfare legislation, which in itself asks for no charity, thus was exacted from us as doctors. Therefore, logic should hold that purveyors of medical services should be compensated for their services commensurate with all other participant in such a program.

I would like for every member of our Medical Society to be aware that shortly, within weeks, policy must be established which will be the pattern, for years to come, of remuneration for medical services rendered the wards of government by you as doctors. Dr. John R. Kernodle of Burlington and Dr. J. Street Brewer of Roseboro will be high among those who will make this decision for you. Those of you who have interest in the present and future of medicine and your Medical Society should feel free to communicate your thoughts and ideas concerning this matter to either Dr. Kernodle or Dr. Brewer.

AMOS N. JOHNSON, M.D.

BULLETIN BOARD

COMING MEETINGS

Duke University Medical Center, Lectures on Ophthalmology—Eye Clinic, Duke Hospital, Tuesday evenings, 7:30 p.m.

American College of Physicians, Regional Meeting—Duke University Medical Center, Durham, December 1.

North Carolina Health Council, Annual Meeting—N. C. State College Union, Raleigh, December 7.

University of North Carolina School of Medicine, Postgraduate Sessions in Pediatrics, Ophthalmology, Medicine, Surgery, Obstetrics and Gynecology—Edenton, Wednesdays, beginning January 11; Kinston, Thursdays, beginning January 12.

Governor's Conference on Occupational Health—Raleigh, January 26, 1961.

North Carolina Mental Health Association—Sir Walter Hotel, Raleigh, February 17-18.

Emory University Postgraduate Course in Ophthalmic Surgery—Grady Memorial Hospital, Atlanta, December 1-2.

Postgraduate Conference on Pediatric Urological Problems, sponsored by the University of Virginia School of Medicine—Charlottesville, December 2.

Southern Surgical Association, Annual Meeting—Boca Raton, Florida, December 3-8.

Gill Memorial Eye, Ear and Throat Hospital, Thirty-fourth Annual Spring Congress—Roanoke, Virginia, April 10-15, 1961.

NEW MEMBERS OF THE STATE SOCIETY

The following physicians joined the Medical Society of the State of North Carolina during the month of October:

Dr. Robert Lowell Dame, 214 Ridgeway Avenue, Statesville; Dr. Pleasant Paul Deaton, Broughton Hospital, Morganton; Dr. Dockery Durham Lewis, Jr., 942 Davie Avenue, Statesville; Dr. Albert Hopkins Fink, Banner Elk; Dr. John Ashley Goree, Duke University Medical Center, Durham; Dr. E. Carwile LeRoy, 106 Fort Washington Avenue, New York 32, N. Y.

NEWS NOTES FROM THE DUKE UNIVERSITY MEDICAL CENTER

Plans for a multi-million dollar clinical research program that will be a major development at the Duke University Medical Center have been announced by Dr. Deryl Hart, president of the University.

Total cost of the project during its five years of operation will be approximately $3,111,000.

This includes U. S. Public Health Service funds expected to total $1,581,000 for support of the program during its first five years. Facilities will be housed in a new Medical Center addition that will cost an additional $1,530,000 provided by the Public Health Service and private sources.

Explaining the purpose of the undertaking, Duke Medical School Dean Barnes Woodhall said that clinical research is concerned with "the careful study of what takes place in various disease states" and with "precise evaluation of the effectiveness of new drugs and treatment methods."

Dean Woodhall said that the program was organized under the direction of Dr. Frank L. Engel, professor of medicine, who will continue to serve as its head until the appointment of a permanent director and an associate director next year.

Duke is one of 11 institutions over the nation selected by the Public Health Service for establishment of clinical research centers. Another is the University of North Carolina.

* * *

A symposium on Malignant Disease with four noted cancer authorities as guest speakers was held at the Duke University Medical Center on October 28.

Co-sponsoring the symposium with the Duke Medical Center was the Durham County unit of the American Cancer Society.

Speakers were Dr. J. A. del Regato, director of Penrose Cancer Hospital, Colorado Springs, Colorado; Dr. Lee Clark, Jr., director and surgeon-in-chief of M.D. Anderson Hospital, Houston, Texas; Dr. Lauren V. Ackerman, professor of surgical pathology at the Washington University School of Medicine, St. Louis, Missouri; and Dr. John V. Blady, clinical professor of surgery and director of the tumor clinic at the Temple University Medical Center, Philadelphia, Pennsylvania.

Three new faculty members have been appointed in the Biochemistry Department of Duke University Medical Center. Dr. R. Taylor Cole, Provost of the University, announced recently.

Dr. Charles Tanford has joined the faculty as professor of physical biochemistry; Dr. Ralph E. Thiers as associate professor of biochemistry and associate director of Duke Hospital's clinical chemistry laboratory; and Dr. Walter R. Guild as associate professor of biophysics.

The promotion of Dr. Robert W. Wheat from associate in biochemistry to assistant in biochemistry to assistant professor of biochemistry also was announced.

* * *

George B. Kantner has been appointed personnel director at the Duke University Medical Center, hospital superintendent Charles H. Frenzel announced recently. He will be responsible for administration of personnel policies, recruitment, and screening of job applicants and development of improved personnel programs for the Medical School.

* * *

Dr. John E. Dees, professor of urology at the Duke University Medical Center, was elected president of the North Carolina Urological Association during the Associations 1960 meeting held in Roaring Gap. He will hold office for two years, succeeding Dr. Oliver J. Hart of Winston-Salem.

Other new officers are vice-president, Dr. Bruce Langdon of Fayetteville; and secretary-treasurer: Dr. Jack Hughes of Durham.

* * *

A Duke University chemist, Dr. Peter Smith, has joined the ranks of scientists engaged in research which may help lessen the damaging effects of radioactive materials on human beings.

Dr. Smith work for the three-year period ending on September 30, 1963, will be supported by a $62,030 financial commitment from the National Institutes of Health Service.

News Notes from the University of North Carolina School of Medicine

A new method for "seeing" and studying the human spleen, developed at the University of North Carolina School of Medicine, was described this month in Atlantic City at the 61st annual meeting of the American Roentgen Ray Society.

The scientific presentation was made by Dr. Philip M. Johnson, who was a faculty member of the UNC School of Medicine up to the time of his resignation last month. The co-scientists on the project were Dr. Ernest H. Wood, professor of radiology, and Dr. Stewart L. Mooring, assistant in radiology, both of the UNC School of Medicine.

This work was carried out in Dr. Johnson's laboratory at the UNC School of Medicine and was supported by a grant from the U. S. Public Health Service.

An FM radio device which broadcasts the heartbeat of patients—and has been used in dozens of instances at N. C. Memorial Hospital has won first prize in a national medical exhibition in New York.

Faculty members of the School of Medicine put on display at the annual meeting of the American Society of Anesthesiologists a frequency modulation broadcasting technique designed at the medical school in Chapel Hill. It is a recent adaptation of widely employed principles of radio telemetry to use in the operating room.

A description of the technique whereby a patient broadcasts his own heart signals from the operating table is described in a report entitled "Radio Telemetry in Physiological Monitoring" by Drs. David A. Davis, Doris C. Grosskreutz, Kenneth Sugioka and Mr. William Thornton. The application of radio telemetry for this purpose has been developed within the past year.

* * *

Two associate professors of surgery at the University of North Carolina School of Medicine participated at the annual meeting of the American College of Surgeons at San Francisco recently.

Dr. C. G. Thomas, Jr., presided at the forum session of the 1960 Clinical Congress at A.C.S. meeting.

Dr. Erle E. Peacock read a paper on "The Effects of Some Rate Regularity on the Synthesis of Collagan in Healing Wounds."

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A one-day seminar for physicians on the prevention and management of athletic injuries was held at the University of North Carolina School of Medicine Wednesday, Sept. 21. Some 100 doctors, most of them physicians for football teams attended.

* * *

Eight faculty members of the University of North Carolina School of Medicine participated in the annual meeting of the Southern Medical Association in St. Louis, October 31-November 3.

A meeting of the U.N.C. Medical Alumni Association was held in connection with the Association's meeting. The speakers at the alumni meeting were Dr. John T. Sessions, Jr., UNC associate professor of medicine, and Dr. John S. Rhodes, president of the Medical Alumni Association. Dr. Joseph M. Hitch of Raleigh, UNC clinical professor of medicine, presided at the alumni session.

The faculty members who took part in the scientific sessions of the medical meeting were Dr. Sessions; Dr. A. Stark Wolkoff, assistant professor of obstetrics and gynecology; Dr. Robert A. Ross, professor and head of the Department of Obstetrics and Gynecology; Dr. Samuel D. McPherson, Jr., clinical professor of surgery (ophthalmology); Dr. H. Robert Brashear, Jr., associate professor of surgery (orthopedics); Dr. Robert D. Langdell, associate professor of pathology and U. S. Public Health Service Senior Research Fellow, and Dr. Robert A. Gregg, clinical associate professor of preventive medicine.

A two-day program on cystic fibrosis was held in the Clinic Auditorium of the University of North Carolina School of Medicine on Thursday-Friday, Oct. 20-21.

Presented for doctors, nurses and physical therapists, the program was sponsored by UNC Section of Physical Therapy in cooperation with the Department of Pediatrics and the Department of Medicine.

* * *

The annual University of North Carolina School of Medicine Symposium was held at N. C. Memorial Hospital Thursday and Friday, November 17-18. The subject for the symposium was Gastroenterology.

The guest participants on the program were Dr. Eddy D. Palmer, lieutenant colonel, Brooke General Hospital, Fort Sam Houston, Texas; Dr. Edward E. Owen, associate in medicine, and Dr. Malcolm P. Tyor, associate professor of medicine, both of Duke University School of Medicine, and Dr. David Cayer, clinical professor of medicine, Bowman Gray School of Medicine.

News Notes from the Bowman Gray School of Medicine

Dr. Chauncey G. Bly has been appointed research professor of pathology at Bowman Gray School of Medicine of Wake Forest College. His appointment was effective September 1. College officials said Dr. Bly will conduct various teaching and research programs within the department. He received his Ph. D. and M.D. degrees from the University of Rochester and the University of Rochester School of Medicine, Rochester, New York, and was previously associated with the Department of Pathology at Duke University Medical Center.

Dr. Warren N. Dannenburg has also joined the faculty as research assistant professor of biochemistry. He received his M.S. and Ph. D. degrees at Texas A. and M. College. His research activities will be in collaboration with the department of obstetrics and gynecology.

Other faculty appointments include Dr. Robert J. Faulconer as lecturer in the history of medicine; Dr. Ivan L. Holleman as instructor in pathology; Dr. Hugh L. Moffet as instructor in pediatrics (Dr. Moffett is also a National Institutes of Health fellow in virology and infectious diseases); Dr. Charles L. Moore as instructor in surgery; Drs. Frank E. Pollock and James E. Robinson as assistants in clinical orthopedics; Dr. Nancy O'Neil Whitley as assistant in preventive medicine; Dr. Thomas B. Templeton as assistant in internal medicine; Dr. Robert P. Thomas as instructor in opthalmology; and Dr. Howard S. Wainer as assistant in clinical internal medicine.

* * *

An informative medico-legal program was presented Friday, November 4, at the Bowman Gray School of Medicine's clinical amphitheater as a part of the school's annual Alumni Day activities.

James Sizemore, professor of law at the Wake Forest College School of Law and lecturer in medical jurisprudence at Bowman Gray School of Medicine, spoke on "The Doctor as an Expert Witness." Okla W. Johnson of Greensboro, agent in charge of the U. S. Treasury Department's North Carolina and western Virginia narcotics division, presented a film entitled "Medical Hazards" and spoke on "Narcotics Addiction." And, William J. McAuliffe, Jr. of Chicago, Illinois, an attorney with the legal division of the American Medical Association, discussed "Malpractice Protection."

Robert F. Clodfelter, a trust officer at Wachovia Bank and Trust Co., Winston-Salem, spoke on estate planning at the banquet session at the Forsyth Country Club. Medical school Dean C. C. Carpenter and Dr. D. E. Ward, Jr. of Lumberton, president of the Medical Alumni Association, also participated in the banquet program.

* * *

Dr. Howard H. Bradshaw, professor and chairman of the department of surgery, has been named to the National Institutes of Health's Clinical Research Fellowships Review Panel for a four-year term.

The NIH fellowship program provides individual support for training in the basic and clinical sciences in medical and allied fields. Its purpose is to develop more teachers and investigators for medical schools.

* * *

Dr. Norman M. Sulkin, William Neal Reynolds Professor of Anatomy and chairman of the department, has been named to a sub-committee of the North Carolina Governor's Coordinating Committee on Aging. The subcommittee will inventory current research in gerontology in North Carolina.

This project was recommended by a recent Specialized Study Committee on Research and Population which prepared material for the North Carolina Governor's Conference on Aging last July.

* * *

Dr. Richard C. Proctor, chairman of the department of psychiatry, was re-elected secretary-treasurer of the Southern Psychiatric Association, October 4, at Virginia Beach, Virginia. Psychiatrists in 13 southern states compose the association.

* * *

Mr. Clyde T. Hardy, Jr., director of the department of clinics, addressed a meeting of the Association of American Medical Colleges, October 31, at Hollywood Beach, Florida. His topic was "Clinical Faculties and Medical Service Plans."

* * *

Coming Academic Events

December 12, 7:30 p.m., clinical amphitheater: Committee on Medical Education program with Dr. Stephen Abrahamson, professor of education at the University of Buffalo School of Education, Buffalo, New York, speaking on "Evaluation of Teaching Programs."

Watts Hospital Symposium

The eighteenth annual Watts Hospital Symposium will be held in Durham, February 3 and 4. The following speakers will participate: Drs. Frederick W. Goodrich, Jr., John R. Haserick, William D. Holden, Oscar B. Hunter, Jr., William K. Keller, Rachmiel Levine, R. Bruce Logue, Alton Ochsner, Edward H. Rynearson, Paul A. Younge, and Col. John P. Stapp, USAF, MC.

A complimentary barbecue dinner will be served early for those desiring to attend the Carolina-Duke basketball game Saturday night. A limited number of reserved seats at $2.50 are available. Those desiring tickets should inform Dr. G. W. Crane, 1200 Broad Street, Durham by November 1.

North Carolina Hospitals Board of Control

In accord with the need for postgraduate training for physicians in psychiatry, the North Carolina State Hospitals are attempting to measure the interest of non-psychiatrists in participating in training and research in psychiatry which is going on in these various hospitals. Accredited programs are to be established according to demand and degree of support, federal and state. Interested physicians may contact Dr. Charles Vernon, Director of Professional Training, North Carolina Hospitals Board of Control, Box 70, Raleigh, North Carolina.

Central Carolina Rehabilitation Hospital

What one community is doing in rehabilitation of patients suffering from chronic disease or impairments was outlined by Dr. Robert A. Gregg, Greensboro, North Carolina, in an address at the Fifty-fourth Annual Meeting of the Southern Medical Association in St. Louis, October 31-November 3.

Speaking before the Section on Physical Medicine and Rehabilitation, Dr. Gregg discussed problems facing Guilford County, North Carolina, in providing adequate care for the long-term patient, and the progress that has been made during the past two years.

He detailed how a group of interested citizens formed a rehabilitation committee, assisted in the conversion of a former poliomyelitis hospital into a rehabilitation center at Greensboro, and saw their efforts culminate in the opening of the Central Carolina Rehabilitation Hospital, offering a medical department with a wide variety of equipment and personnel to assist the chronically disabled patient to return to his fullest functional capacity. Services at the hospital include medical, psychologic social, and vocational.

Financial assistance has been obtained from the Office of Vocational Rehabilitation under Public Law 565 to assist in operating costs for the first fiscal year.

Dr. Gregg says that a close liaison has been maintained between the Guilford County Medical Society and the rehabilitation hospital. The staff at present consists of a full-time medical director and an active courtesy staff of physicians from all specialties. The hospital is a non-profit one, governed by a nine-member Board of Trustees and medically supervised by a five-member Board of Physicians.

Robeson County Medical Society

The Robeson County Medical Society held its regular monthly meeting on October 3, at Lumberton.

Dr. Nathan Womack, professor of surgery, University of North Carolina Medical School, was speaker for an afternoon clinical session and an evening lecture. In the clinical session he discussed cholelithiasis and cancer of the breast. In the evening he presented a paper entitled "Massive Hemorrhage In Cirrhosis."

The program was sponsored by Lippincott's Medical Science.

Edgecombe-Nash Medical Society

The monthly meeting of the Edgecombe-Nash Medical Society was held October 12, in Rocky Mount.

Dr. B. M. Gold, program chairman for October, presented as guest speaker, Dr. John Arnold of the Pediatrics Department, Memorial Hospital, Chapel Hill, whose topic was "Differential Diagnosis of Polio and Viral Diseases of Childhood."

News Notes

Drs. Wilmer C. Betts, J. Douglas McRee, and Barbara M. Moore of Raleigh announce the association of Robert N. Harper for the practice of child and adult psychiatry. Offices are located at 2109 Clark Avenue, Cameron Village.

* * *

Dr. Robert T. Savage has reopened his office for general practice and pediatrics at 1020 Stratford Road, Winston-Salem.

* * *

Dr. Sherwood W. Barefoot has announced the association of Dr. John H. Cox in the practice of dermatology, with offices located at 108 East Northwood Street in Greensboro. Dr. Cox was certified by the American Board of Dermatology and Syphilogy in 1953.

Gill Memorial Eye, Ear and Throat Hospital

The Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Virginia, will hold its thirty-fourth annual Spring Congress in Ophthalmology and Otolaryngology and Allied Specialties April 10 through April 15, 1961.

There will be 20 guest speakers and 50 lectures.

American College of Surgeons

Approximately 1,175 surgeons were inducted as new Fellows of the American College of Surgeons at the annual five-day Clinical Congress of the College.

Fellowship is awarded to doctors who fulfill comprehensive requirements for acceptable medical education and advanced training as specialists in one or another of the branches of surgery, and who give evidence of good moral character and ethical practice.

Those receiving this distinction from the State of North Carolina at the Convocation are as follows: Drs. Jack Powell, Asheville; John E. Way, Beaufort; Donald W. Robinson, Captain, USN, Camp Lejeune; Benjamin H. Flowe and Edwin M. Tomlin, Concord; Victor A. Politano and W. Glenn Young, Jr., Durham; Crowell T. Daniel, Jr., Fayetteville; M. Harvey Rubin, Greensboro; W. Grimes Byerly, Jr., Hickory; Frederick P. Dale, Kinston; John C. Lawrence, Lumberton; Duwayne D. Gadd, Pinehurst; Warren J. Collins, Shelby; J. Ralph Dunn, Jr., Tarboro; and Jesse H. Meredith, Winston-Salem.

American Medical Association

A symposium on Clinical Nutrition will be held in Washington, D. C. on November 30. This symposium, sponsored by the Council on Foods and Nutrition of the American Medical Association in cooperation with the Medical Society of the District of Columbia, will begin at 8:30 a.m. Wednesday, November 30, in Room B of the National Guard Armory. The meeting will be opened to all interested persons.

The National Foundation

The National Foundation announced recently the publication of a new monthly annotated bibliography on arthritis and related diseases. It is being sent initially to 3,650 selected individuals and institutions all over the world.

The bibliography will cover scientific articles on arthritis appearing in professional journals both here and abroad. Entitled "Current Literature—Arthritis and Related Diseases," it is designed to serve as a comprehensive and up-to-date reference to the vast international literature on rheumatic diseases.

The present plan calls for the distribution to departments of internal medicine, pediatrics, and microbiology of all medical schools in this country, to medical libraries here and abroad, to occupational and physical therapy schools, collegiate nursing schools, grantees and medical advisers of The National Foundation, a selected group in national, state and local government health agencies, members of the American Rheumatism Association, and certain medical journals and individuals.

American Board of Obstetrics and Gynecology

The Part 1 examinations (written) will be held in various cities of the United States, Canada, and military centers outside the Continental United States on Friday, January 13, 1961.

Reopened candidates will be required to submit case reports for review 30 days after notification of eligibility. No reopened candidate may take the written examination unless the case abstracts have been received in the office of the executive secretary.

Current Bulletins outlining present requirements may be obtained by writing to Executive Secretary, Robert L. Faulkner, M.D., American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland 6, Ohio.

World Medical Association

At its fourteenth General Assembly held in West Berlin, Germany, September 15-22, the World Medical Association elected the following officers: president—Dr. Paul Eckel, Germany; president-elect—Dr. Antonio Moniz, Brazil; Council members—Drs. J. G. Hunter, Australia; L. W. Larson, U. S. A.; Antonio Spinelli, Italy; Hector Rodriguez, Chili.

Dr. Heinz Lord was elected secretary-general, and Dr. Gunnar Gundersen was elected chairman of the Council. Dr. Larson is chairman of the Committee on Medical Education.

U. S. Department of Health, Education and Welfare

Competitive Examinations for appointment of physicians as Medical Officers in the Regular Corps of the United States Public Health Service Commissioned Corps will be held throughout the United States on January 31, and February 1 and 2, 1961.

Application forms may be obtained by writing to the Surgeon General, United States Public Health Service (P), Washington 25, D. C. Completed application forms must be received no later than December 2, 1960.

* * *

The cooperation of physicians is requested in a study on the association of polycythemia with neoplastic disease being conducted by the metabolism service of the National Cancer Institute in the Clinical Center of the National Institutes of Health. An elevation of the circulating red cell volume in the absence of leucocytosis and thrombocytosis has been noted in a significant number of patients with renal tumors and cerebellar hemangioblastomas and rarely in patients with uterine fibroids, pheochromocytomas, and other neoplasms. The presence of an erythropoiesis stimulating factor has been demonstrated in homogenates of the cerebellar, renal, and pheochromocytoma tumor tissue. This study has as its purpose the determination of the chemi-

cal and mode of action of the erythropoiesis stimulating factor produced by these tumors.

Patients admitted to the study undergo a period of clinical evaluation including the determination of the circulating red cell volume, red cell life span and the rate of red cell synthesis. Plasma and tumor tissue, if available, will be assayed for erythropoiesis stimulating activity.

Physicians who wish to have their patients considered for this study at the National Cancer Institute may write or call: Dr. Thomas A. Waldmann, National Cancer Institute, Bethesda 14, Maryland.

* * *

Physicians and workers in allied fields who are interested in the venereal diseases are invited to participate in the twelfth annual Venereal Disease Symposium at the Hotel New Yorker in New York City April 13 and 14, 1961.

The program committee for the 1961 symposium points out that reported cases of primary and secondary syphilis have increased 52 per cent over the past year.

Sponsored jointly by the American Venereal Disease Association and the Public Health Service, the symposium will follow a Seminar on Venereal Disease for public health personnel which begins April 10.

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VETERANS ADMINISTRATION

An electronic flash system that provides light for photographing the interior of the human eyeball—and quickly enough to give a minimum of discomfort to the patient—has been developed by a Veterans Administration medical illustrator.

He is Leonard M. Hart of the Durham, North Carolina, VA hospital's medical illustration division.

Hart's lighting system can be used on a standard retinal camera.

He has been developing the electronic flash for about five years. He devised the lighting system while he was employed at the VA's West Side Hospital in Chicago and perfected it at the Durham VA hospital, where he is working in conjunction with Dr. Albert Heyman of Duke Hospital.

The electronic flash is used for only one-thouandth of a second, and focusing is done by use of a milder repetitive flashing light.

Dr. Heyman uses the photographs to study blood vessels inside the eyeball, as an aid to diagnosis of abnormalities in blood vessels of the brain and for research about strokes.

Hart described his new electronic flash system at a recent meeting of the Biological Photographic Association, in Salt Lake City.

* * *

Appointment of Dr. Robert I. McClaughry of the National Academy of Sciences-National Research Council as director of medical education service for the Veterans Administration was announced by the VA today.

A former assistant dean of Wayne University's College of Medicine in Detroit, Dr. McClaughry has been associated in a professional capacity with the Division of Medical Sciences of the National Academy of Sciences in Washington, D. C., since June 1958.

* * *

Appointment of Joe Meyer, Ph.D., as chief of the medical research laboratories division of the Veterans Administration was announced by the VA recently.

Dr. Meyer has been serving as chief of the medical research laboratories of the Houston, Texas, VA hospital and associate professor of biochemistry at Baylor University College of Medicine, since 1959.

New Medical Film Released

The release of a new medical film, "The Mechanism and Control of Nausea and Vomiting," was announced recently by Smith Kline & French Laboratories.

Jack C. Borland, director of SK&F's Medical Film Center, said the 21-minute, color film is "based on the findings over the past 10 years on the neurological mechanisms involved in nausea and vomiting." It is available on a free-loan basis to pro-

fessional audiences through local representatives of the Philadelphia pharmaceutical firm.

Prints of the new film also may be obtained through the Medical Film Center, Smith Kline & French Laboratories, Philadelphia 1, Pa.

* * *

Griseofulvin Effective in Treatment of Bursitis

Effective treatment of bursitis, pain from "whiplash" injuries to the neck, and the shoulder-hand syndrome by the administration of griseofulvin was reported by Dr. Howard Rusk in the August 14 issue of the New York Times.

In an earlier report, published in the June 4 issue of the **Journal of the American Medical Association**, Drs. Abraham Cohen, Richard Daniels, and William Kanenson, all of Philadelphia, and Dr. Joel Goldman of Johnstown, Pennsylvania, told of their successful use of griseofulvin in the treatment of shoulder-hand syndrome.

Operating on the theory that the antibiotic could be used as an anti-inflammatory agent, the physicians administered Fulvicin (griseofulvin) to patients suffering from rheumatoid arthritis, including 12 patients with shoulder-hand syndrome, a disease affecting the nerves and circulation. No effect was noted in relieving the pain or other symptoms of the arthritis. However, good results were observed in those patients with shoulder-hand syndrome.

Dr. Rusk noted that "this is far too small a group from which to draw firm and permanent conclusions, but the improvement was so prompt and lasting that it seemed significant."

Dr. Cohen and his associates stated that "we are unable to give a scientific explanation of our findings. The consistency with which the improvement occurs is indeed unusual. This is a preliminary report, made in the hope that others might use this method either to confirm or refute our findings."

Griseofulvin was introduced in this country as Fulvicin by Schering Corporation in the fall of 1959.

"Prescription for Tomorrow"

One of the most fruitful efforts to bring the achievements and the American health team—the doctor, the druggist and the pharmaceutical manufacturer—to public attention reached a milestone recently with the one thousandth presentation of the speech "Prescription for Tomorrow."

The talk, which details the "medical revolution" which has taken place during the last 30 years, is the focal point of an ambitious speakers program initiated by Smith Kline & French Laboratories, Philadelphia drug firm, in June, 1959. Since that time the speech has been heard by approximately 50,000 members of civic, fraternal and social groups throughout 48 states and Canada.

In addition, it has carried to radio and television audiences of more than 700,000.

The one thousandth presentation was made before the Johnstown, Pennsylvania, Rotary Club by SK&F Professional Service Representative James Blough, one of more than 250 speakers trained under the program.

Because of the success of this "grass roots" program, the SK&F Speaker Bureau is currently enlarging its scope to include talks on mental health and the importance of quality control in pharmaceutical manufacturing. Groups interested in securing speakers for their gatherings may contact Dr. Robert Haakenson, S.K. and F. Manager of Community Education for further information.

Classified Advertisement

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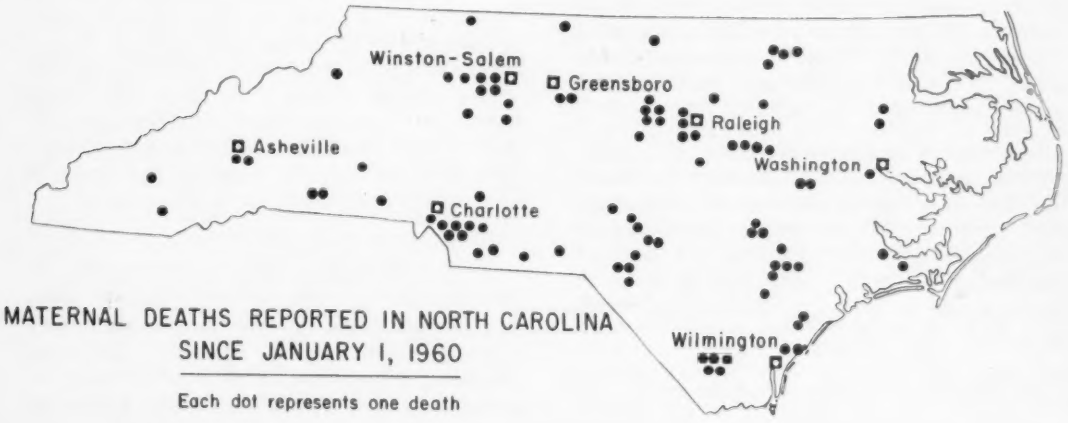

The Month in Washington

Representatives of the medical and health professions the federal government and national civic groups are cooperating in development of a program for starting the general use of the Sabin live-virus poliomyelitis vaccine next year.

Shortly after clearing the Sabin vaccine for general use, Leroy E. Burney, M.D., Surgeon General of the Public Health Service, asked 23 non-government organizations to designate members to serve on a Surgeon General's Committee on Poliomyelitis Control.

An Agenda Committee met with PHS officials in Atlanta October 11 and 12 and drafted a basic agenda for a meeting of the Control committee in mid-winter. At the Atlanta meeting, preliminary consideration was given to administrative and technical problems involved in use of the live-virus vaccine developed by Albert B. Sabin, M.D., of Cincinnati.

The Agenda committee was made up of representatives of the American Medical Association, American Academy of General Practice, American Academy of Pediatrics, Association of State and Territorial Health Officers, Children's Bureau, and the National Foundation.

The Sabin vaccine is not expected to be available in substantial quantities before mid-1961.

The chief question is whether the vaccine —which is given orally in the form of pills, liquid or candy—will be administered on individual or mass community basis. The PHS special committee that recommended approval of the oral vaccine said that the community basis would be better.

"Because of the unique nature of live poliovirus vaccine, with its capacity to spread the virus in a limited manner to non-vaccinated persons, the committee cannot make recommendations for manufacture without expressing concern about the manner in which it may be used," the special committee said.

"The seriousness of this responsibility can be illustrated, for example, by the known potentiality of reversion to virulence of live poliovirus vaccine strains, and the possible importance of this feature in the community if the vaccine is improperly used.

"For example, the vaccine has been employed largely in mass administrations where most of the susceptibles were simultaneously given the vaccine, thus permitting little opportunity for serial human transmission; or, it has been administered during a season of the year when wild strains have usually shown limited capacity for spread. This experience should provide the basis for developing useable practices for the U.S.A."

The special committee also said attention should be given to administration to special groups, such as very young children, pregnant women, and susceptible adults.

"Even more important is the planned continuation of this program as long as necessary to achieve and maintain the required results," the committee said.

The committee was headed by Roderick Murray, M.D., of the National Institutes of Health. Its other members were four M.D.'s and one Ph.D., all of whom were connected with universities except for one M.D. from the PHS's Communicable Disease Center at Atlanta.

Neither the committee nor Dr. Burney anticipated that the live virus vaccine would replace the killed-virus Salk vaccine used since April, 1955.

"It appears probable that only a unified national program which utilizes each of the available types of vaccine to its best advantage can accomplish the total prevention of outbreaks," the committee said.

Dr. Julian P. Price of Florence, S. C., chairman of the A.M.A.'s Board of Trustees, predicted the live-virus vaccine "will be one more powerful weapon against an ancient and crippling disease." He said that physicians "have conscientiously pushed immunization with the Salk vaccine and now, with this new vaccine, the profession is hopeful that even better results can be achieved."

* * *

Five states were ready soon after the effective date of October 1 to submit plans for participation in the federal-state program of health care for the needy and near-needy aged persons which recently was enacted into law. The states were Arkansas,

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From Washington Office, American Medical Association, 1523 L Street, N.W.

Michigan, New Mexico, Oklahoma, and Washington.

As of early October, another 25 states were preparing to consider legislation to set up such a program or had indicated a willingness to proceed without new legislation. They were Alabama, California, Colorado, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kentucky, Louisiana, Massachusetts, Montana, Nevada, New Jersey, North Dakota, North Carolina, Ohio, Pennsylvania, Rhode Island, Utah, West Virginia, Virginia, and Wyoming.

Arthur S. Fleming, Secretary of Health, Education and Welfare, urged all states to take part in the program as soon as possible. But he also said he hopes that Congress in the next session will approve a Republican plan for a supplementary federal-state program to help provide private health insurance for elderly persons who cannot meet their medical expenses.

It appears that the issue probably will arise in Congress next year because some Democrats also have said they will again sponsor legislation that would provide health care for aged persons through the Social Security system.

* * *

The A.M.A. has launched a "comprehensive study and action program" to guide Americans in spending their health-care dollars more wisely.

The A.M.A.'s new Commission on Medical Care Costs has set out "to find answers to the many questions being raised about medical care costs and to present the findings frankly and forthrightly to the medical profession and to the public."

The program is "dedicated to promoting the highest quality health care at the lowest cost." Louis M. Orr, M.D., of Orlando, Florida, chairman of the commission, said that "any barrier that stands in the way of this objective should be removed—immediately."

One of these barriers is money wasted on ineffective non-prescription or over-the-counter drug products, such as vitamins, food fads, and rheumatism and arthritis remedies. A.M.A.'s Council on Foods and Nutrition has estimated that much of the estimated $350 million spent annually on self-prescribed vitamins is wasted.

The A.M.A. is urging physicians to alert their patients and the public to the latent dangers involved in self-prescribing and to the folly of throwing their health-care dollars away on quackeries.

On another front in the war against quackery, Food and Drug Commissioner George P. Larrick reported that during the past 12 months the FDA had seized falsely promoted vitamins, minerals and other so-called "health foods" valued in excess of $1.5 million. He said that the amount of misinformation, pseudo-science and plain "hokum" on health care reaching the public through books and magazine articles is increasing.

In Memoriam

Joseph Francis McGowan, M.D.

Dr. Joseph Francis McGowan, aged 57, died at 11:40 a.m., Sunday, July 17, in an Asheville hospital after a brief illness.

Dr. McGowan was the son of the late John and Ann Burns McGowan of Cresson, Pennsylvania, where he attended the public schools and St. Francis College. His family then moved to Youngstown, Ohio, where he attended the Youngstown College and received his B.S. degree. He took his medical course at the University of Maryland, graduating in 1929.

After graduating in medicine Dr. McGowan returned to Ohio and served an Internship at St. Elizabeth Hospital Hospital in Youngstown, Ohio, and engaged in general practice there for four years. He then became interested in Eye, Ear, Nose and Throat, and began the special studies in these fields.

He took extensive post graduate courses in many teaching centers including the University of Chicago, Rush Medical College, University of Indiana and North Western University. He served a term as resident physician and surgeon at the Episcopal E.E.N.T. Hospital in Washington, D. C., and then further studied at Columbia University and N. Y. Post Graduate Medical School.

Dr. McGowan came to Asheville in 1937 and began the practice of his specialty. He soon became a member of the staffs of the Aston Park, Memorial Mission, and St. Joseph's Hospitals. In the latter hospital he served a term as chief of staff. During the large practice of his specialty he was the author of many articles which were published in medical and scientific journals.

He was a past president of the Asheville Lions Club, a member of St. Lawrence Catholic Church, and the Fourth Degree Knights of Columbus, and the Phi Chi Medical fraternity.

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Dr. McGowan's interest in the activities and scientific progress in medicine is shown by the number of organizations to which he belonged. Among these are: The North Carolina State Medical Society, the North Carolina E.E.N.T. Society, the Southern Medical Association, and the American Medical Association. He was a Diplomate of the American College of Allergists, and of the American Otorhinological Society for the advancement of reconstructive plastic surgery. He was a Diplomate of the American Board of Otolaryngology, a member of the American College of Ophthamology and Otolaryngology, and the New York Academy of Science.

Surviving are the widow (the former Miss Frances Genevieve Oddi), one son and four daughters of the home in Asheville, one brother Charles McGowan of Pittsburg, Pennsylvania, and two sisters, Mrs. Joseph Singer of Coraoplis, Pennsylvania, and Mrs. Ben Conlin of Washington, D. C.

During the period of almost a quarter of a century of practice in Asheville, Dr. McGowan proved himself to be devoted to his family and actively interested in the work of the church, the hospitals, the medical societies, and the community at large. One of his greatest hobbies was music.

His passing at the early age of 57 is a great loss to the family, his friends, his patients and to the community. He will continue to live in their memories.

Be it therefore resolved that the report of this committee be adopted and entered into the minutes of this Society; and that a copy be sent to the family, to the North Carolina State Medical Society, and to the A.M.A.

R. A. White, M.D.
W. M. Russell, M.D.
H. H. Briggs, M.D.

Adam Tredwell Thorp, M.D.

Dr. Adam Tredwell Thorp died at Park View Hospital in Rocky Mount, on July 5, 1960, at the age of 66. His death will be deeply felt by his patients, friends, and professional colleagues throughout the state.

He is survived by his wife, Mrs. Helen Merriam Thorp of Rocky Mount; two sons, Dr. Adam T. Thorp, Jr. of Bethesda, Maryland, and Dr. James M. Thorp of Portsmouth, Virginia; and four grandchildren. He is also survived by two brothers, Mr. Isaac D. Thorp of Rocky Mount and Mr. John Thorp of Wythville, Virginia.

Dr. Thorp was born in Nash County near Rocky Mount in 1893. Following his early education in the community schools he attended the University of North Carolina, where he received his A.B. degree in 1916. After teaching for a year in Goldsboro, he returned to the University of North Carolina where he entered medical school. After completing the two-year medical course there, he transferred to the University of Pennsylvania where he received his M.D. degree in 1921.

After an internship at the Episcopal Hospital in Philadelphia, Dr. Thorp returned to Rocky Mount and began the practice of general medicine. He became interested in obstetrics and gynecology and in 1940, after doing post-graduate work, he restricted his practice to that specialty. In addition to his membership in the local, district, and state medical societies, Dr. Thorp was a member of the North Carolina Obstetrical and Gynecological Society, which organization he served as president in 1955, and of the South Atlantic Association of Obstetricians and Gynecologists. He was a Fellow in the American College of Obstetrics and Gynecology.

Dr. Thorp had many non-professional interests. He was a life-long member of the Episcopal Church. For many years he served as Director of the local chapter of the Salvation Army and of the YMCA. He maintained an active interest in the University of North Carolina and particularly to The Medical School and served as President of the Medical Alumni and permanent class agent for his class of 1919.

Adam Thorp was a beloved man. He will be best remembered for his endless expressions of thoughtfulness and kindness and for his gentle good humor. His acts of kindness have made for many a road less bumpy or a day more bright.

He loved the practice of medicine. He was one of those few—those fortunate few—who early made the complete self-surrender and thereafter wore the iron yoke of duty—not complainingly—but joyously.

He loved people, he loved his fellowman. And like Abou Ben Adhem, we feel that he will be at the head of the list of those whom the Lord loves.

He died after a massive myocardial infarction. His manner of dying confirmed the axiom of the late Sir William Osler: As a man lives so does he die. Dr. Thorp died quietly, peacefully, a gentleman unafraid.

Therefore be it resolved, that we do mourn the loss of our fellow-member of the Edgecombe-Nash Medical Society, and that we extend our sympathy and understanding to his widow, Helen Thorp, and, that a copy of these resolutions be spread upon the minutes of this Society and a copy be sent to Mrs. Thorp and the North Carolina State Medical Society.

C. T. Smith, M.D.
A. L. Daughtridge, M.D.
J. C. Brantley, Jr., M.D.

Earl W. Brian, M.D.

WHEREAS, the death of Earl W. Brian, Raleigh physician and a member of the State Board of Health from July 15, to August 1, 1960, has brought profound sorrow to his multitude of friends and associates, and

WHEREAS, the State Board in recognition of his influence and invaluable service wishing to express

its sense of personal loss in his passing and its grateful appreciation of his many virtues, does hereby set forth this formal resolution of respect.

A native of Arkansas, Earl W. Brian received his medical degree at Duke University in 1934 and practiced medicine in Raleigh beginning in 1939. In Raleigh he plunged into the professional and civic life of the city and became active as a member of the Edenton Street Methodist Church.

Elected to membership on the State Board of Health in 1958 by action of the Medical Society of the State of North Carolina, he brought to the State Board a wealth of training and experience in medical care, years of unselfish community services —civic, church and preventive medicine, and above all a devoted motivation and gentleness of spirit in his every word and action. In his work on the State Board he showed the same wisdom and conscientious devotion to duty that he demonstrated in his private life. His influence will be projected through each of his co-workers in the State Board of Health for a long time to come.

His deep interest in his fellow man and his acute sense of duty were combined with his innate ability in a way that brought him into places of principal leadership in many phases of the community's life —in the Wake County Medical Society, the Raleigh Kiwanis Club, the Executives Club of Raleigh, the United Fund of Raleigh, the Salvation Army, the Occoneechee Boy Scout Council, the Wake County Cancer Society, the Heart Association, the Wake County Tuberculosis Association and in other organizations touching helpfully the health and welfare of those about him.

Ever the epitome of a gentleman, an ardent champion of the manly art of chivalric demeanor, he moved among us with a quiet voice, a gentle countenance, and a noble bearing that reflected and bespoke the majestic character from which they emanated. To know him was not only to love him but also to join hands with him in living for others. Be it therefore

Resolved, that this expression of respect and appreciation be formally enacted by the State Board of Health and spread upon its official minutes, and that a copy be forwarded to the family of our departed friend to convey, though inadequately, the heartfelt sympathy of the members of the State Board, and be it further

Resolved, that copies be also sent to the editor of the NORTH CAROLINA MEDICAL JOURNAL, the editor of the Journal of the American Medical Association, the editor of the Journal of the American Public Health Association, the Secretary of the Medical Society of the State of North Carolina, and to the Secretary of the North Carolina Public Health Association.

This sixth day of October, 1960.

BOOKS RECEIVED

Adventure to Motherhood: The Picture-Story of Pregnancy and Childbirth. By J. Allan Offen, M.D. Price, $2.95. Published by Audio Visual Education Company of America, Inc. Distributed by Taplinger Publishing Co., Inc., New York. 1960.

Your Child's Care. By Harry R. Litchfield, M.D., and Leon H. Dembro, M.D. 1001 Questions and Answers. 257 pages. Price, $3.95. New York: Doubleday & Company, 1960.

French's Index of Differential Diagnosis. Edited by Arthur H. Outhwaite, M.D. Ed. 8. 1111 pages. Price, $24.00. Baltimore: The Williams & Wilkins Company, 1960.

Symposium of Pathology. By W. A. D. Anderson. Ed. 5. 876 pages. Price, $9.25. St. Louis: The C. V. Mosby Company, 1960.

Sight: A Handbook for Laymen. The Structure, Functions, Malfuntions and Diseases of the Eye. By Roy O. Scholtz, M.D. 166 pages. Price, $3.50. Garden City, New York: Doubleday & Company, Inc., 1960.

Nine Months' Reading: A Medical Guide for Pregnant Women. By Robert E. Hall, M.D. 191 pages. Price, $2.95. Garden City, New York: Doubleday & Company, Inc., 1960.

First Sustained-Action Oral Steroid Is Developed by the Upjohn Company

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The preparation, called Medrol Medules, utilizes a new kind of coating which permits substantially reduced incidence of local side effects, especially those related to gastric irritation.

SK&F Names New Director of Research

Dr. John Kapp Clark has been named director of Research & Development at Smith Kline & French Laboratories in Philadelphia.

Dr. Clark, who had been SK&F's director of Research, succeeds W. Furness Thompson who has resigned as vice president of Research & Development. In addition to his new position with the pharmaceutical firm, Dr. Clark will continue his affiiliation with the University of Pennsylvania where he serves as associate professor of medicine.

Last year, according to National Safety Council statistics, some 9,300,000 citizens suffered fatal or disabling injuries with approximately half of these occurring in the supposed safe confines of the home. In recent years, accidents have killed, maimed and crippled more children between the ages of 1 and 14 than the seven deadliest diseases combined, and are now the leading cause of death for all persons between the ages of 1 and 36.

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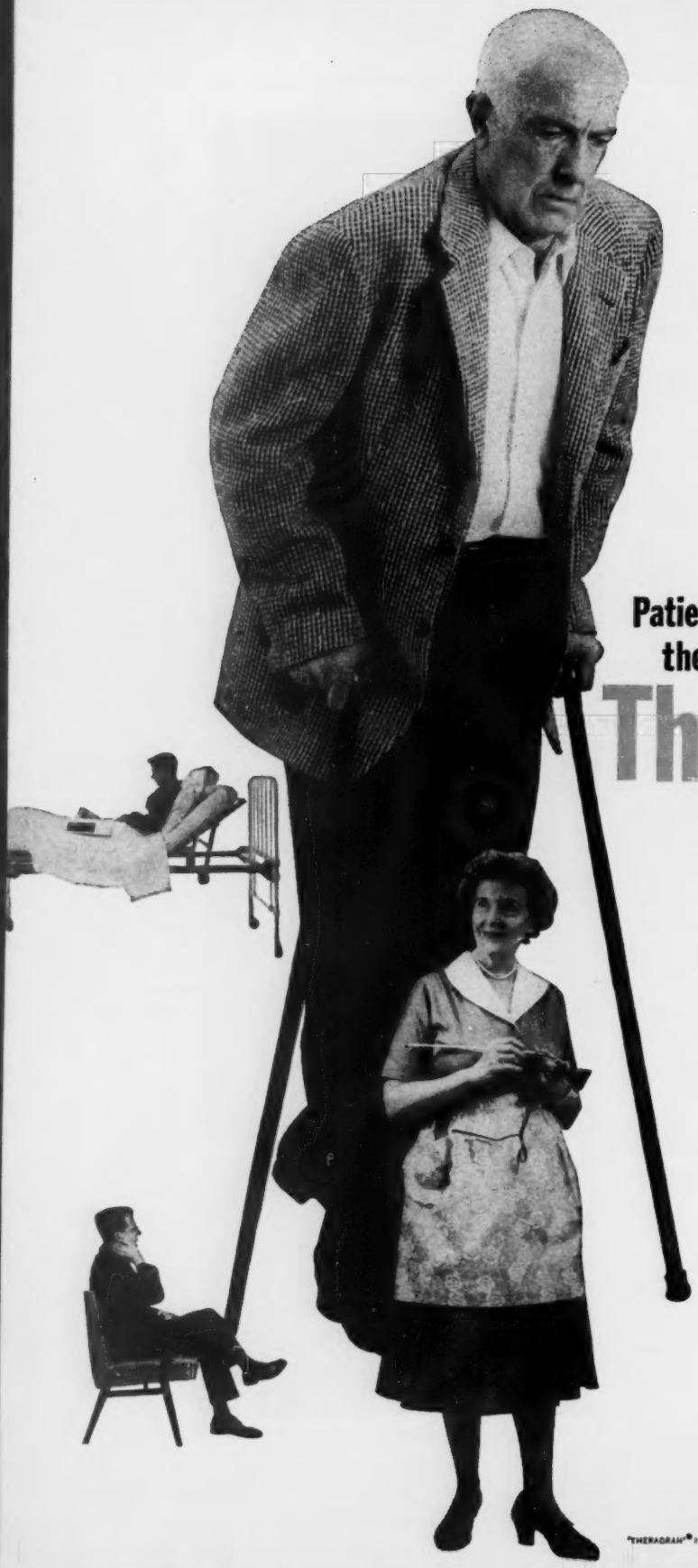

in infectious disease[17,22,30,38]
in arthritis[18,19,20,21]
in hepatic disease[2,3,4,5,38]
in malabsorption syndrome[1,2,6,27]
in degenerative disease[6,7,19,20,40]
in cardiac disease[23,28,29,38,41]
in dermatitis[24,33]
in peptic ulcer[8,21,38]
in neuroses & psychiatric disorders[25,26]
in diabetes mellitus[31,32,33,38]
in alcoholism[9,11,36,37,38]
in ulcerative colitis[10,14,16]
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1-41 a list of the above references will be supplied on request.

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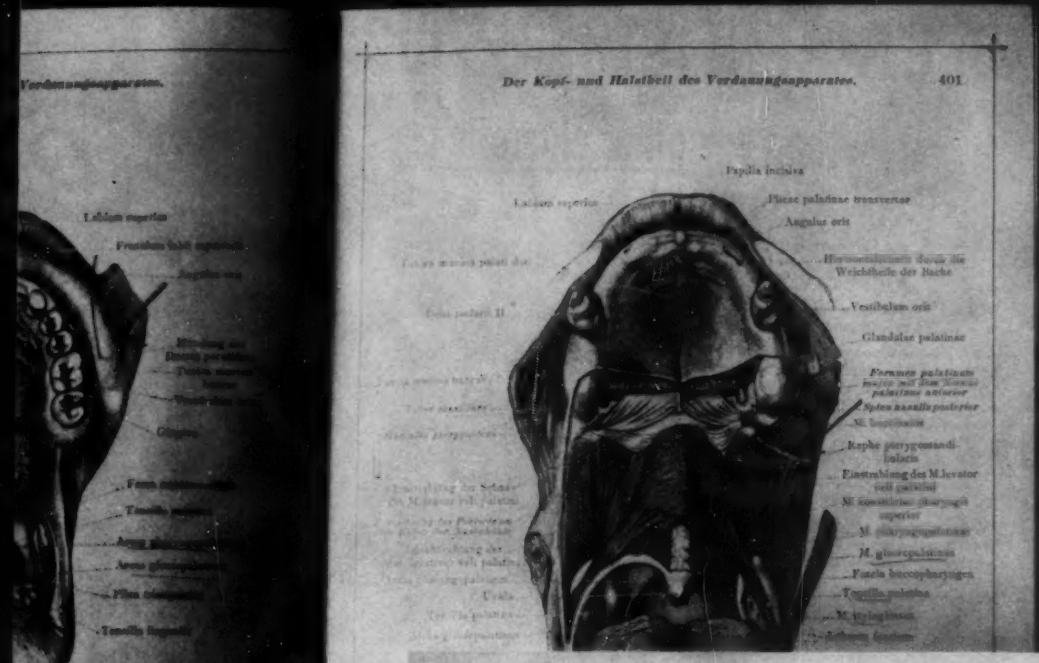

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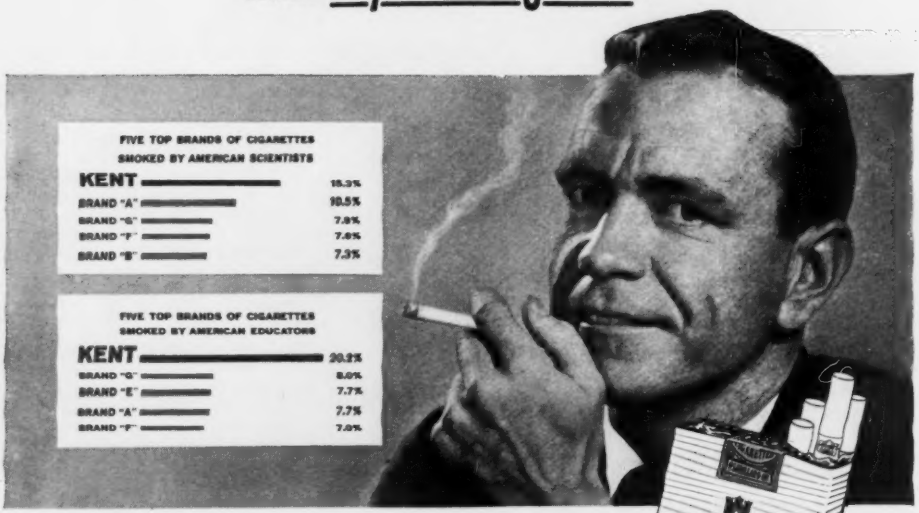

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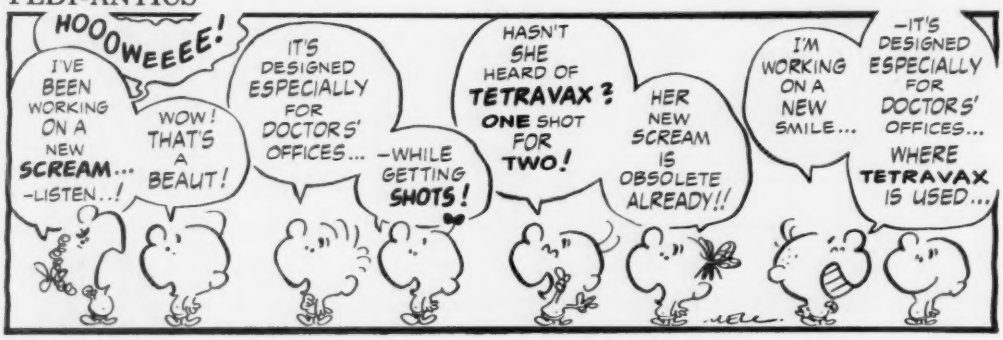
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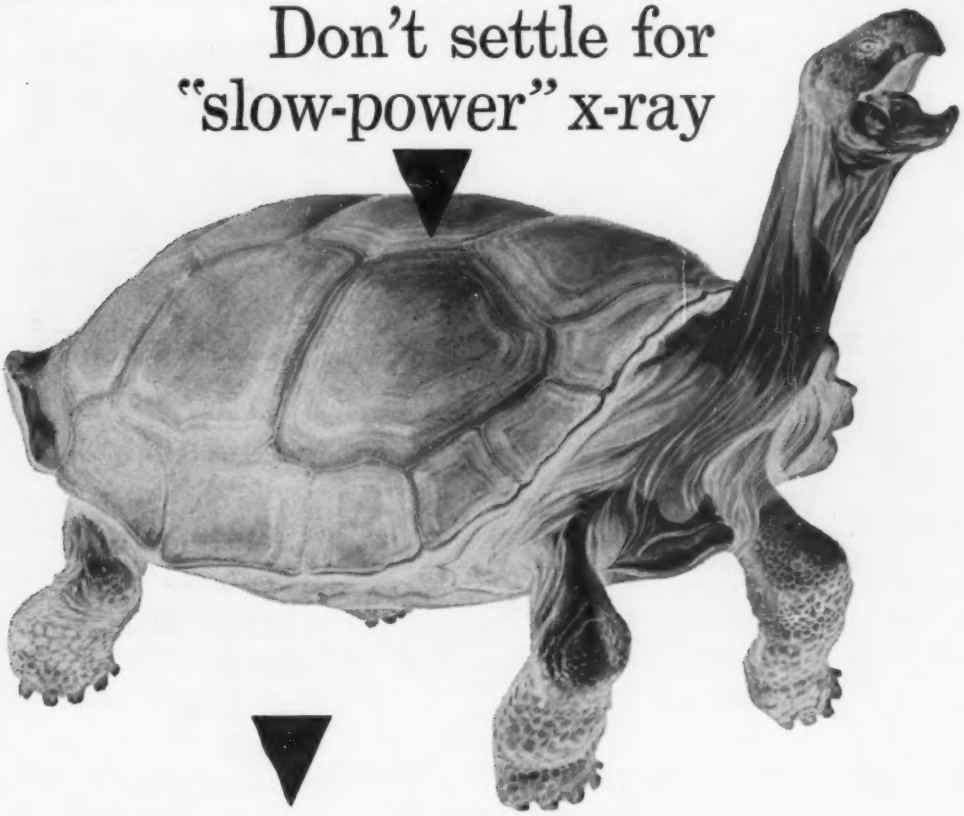

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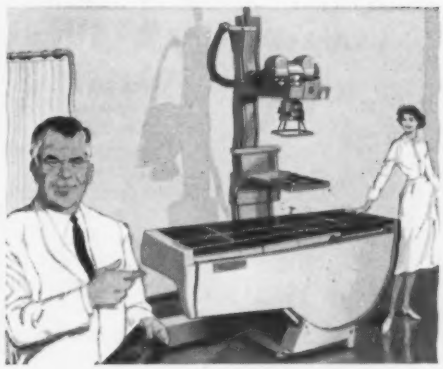

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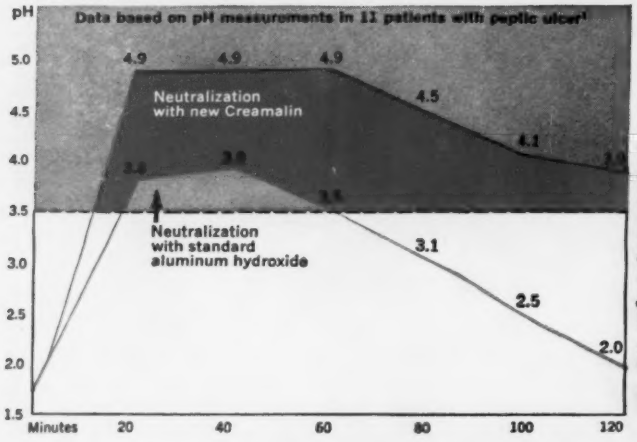

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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: J. Am. Pharm. A. (Scient. Ed.) 48:384, July, 1959.

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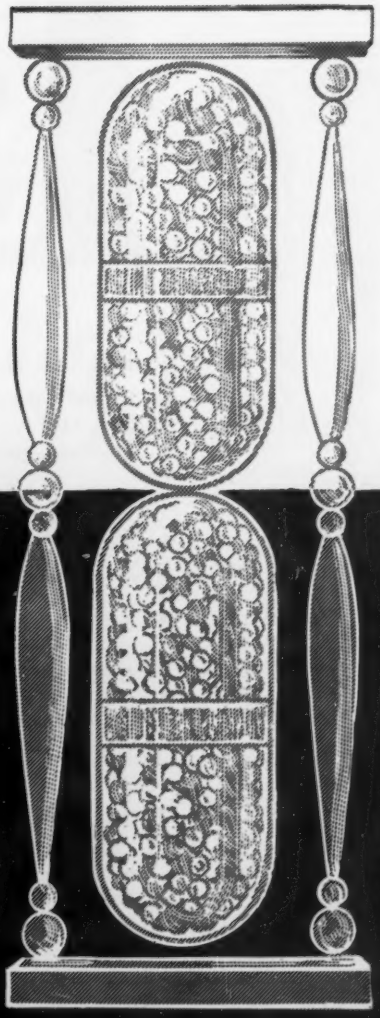

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well-tolerated analgesia

Calurin®, calcium acetylsalicylate carbamide equivalent to aspirin 300 mg. This is the freely-soluble calcium aspirin that minimizes local irritation, chemical erosion, gastric damage. High, fast blood levels.

TAIN brings quick, symptomatic relief of the common cold (malaise, headache, muscular cramps, aches and pains) especially when susceptible organisms are likely to cause secondary infection. Usual adult dose is 2 Inlay-Tabs, q.i.d. In bottles of 50. ℞ only. Remember, to contain the bacteria-prone cold...TAIN.

SMITH-DORSEY • Lincoln, Nebraska
a division of The Wander Company

Dependable Pain Reliever

Professional confidence in the uniformity, potency and purity of Bayer Aspirin is evidenced by ever increasing recommendation. Bayer Aspirin is the most widely accepted brand of analgesic the world has ever known.

We welcome your requests for samples of Bayer Aspirin and Flavored Bayer Aspirin for Children.

THE BAYER COMPANY, DIVISION OF STERLING DRUG INC., 1450 BROADWAY, NEW YORK 18, N.Y.

in arthritis and allied disorders

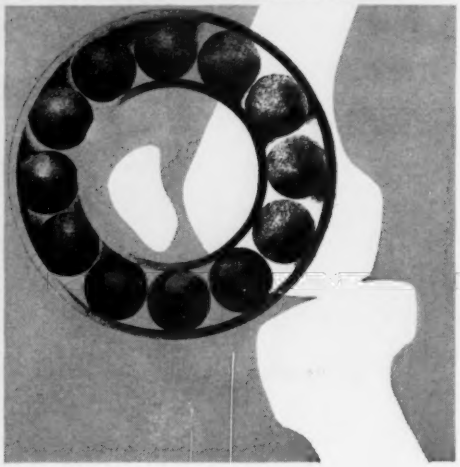
Butazolidin®
brand of phenylbutazone
Geigy

Proved by a Decade of Experience
Confirmed by 1700 Published Reports
Attested by World-Wide Usage

Since its anti-inflammatory properties were first noted in Geigy laboratories 10 years ago, time and experience have steadily fortified the position of Butazolidin as a leading nonhormonal anti-arthritic agent. Indicated in both chronic and acute forms of arthritis, Butazolidin is noted for its striking effectiveness in relieving pain, increasing mobility and halting inflammatory change.

Butazolidin®, brand of phenylbutazone: Red, sugar-coated tablets of 100 mg. Butazolidin® Alka: Orange and white capsules containing Butazolidin 100 mg.; dried aluminum hydroxide gel 100 mg.; magnesium trisilicate 150 mg.; homatropine methylbromide 1.25 mg.

Geigy, Ardsley, New York



162-60

Major Hospital Policy

Pays up to $10,000.00 for each member of your family, subject to deductible you choose

Deductible Plans available:

$100.00
$300.00
$500.00

Business Expense Policy

Covers your office overhead while you are disabled, up to $1,000.00 per month

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The Medical Society of North Carolina for Its Members

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108 East Northwood Street
Across Street from Cone Hospital
GREENSBORO, N. C.
Phones: BRoadway 5-3400 BRoadway 5-5035

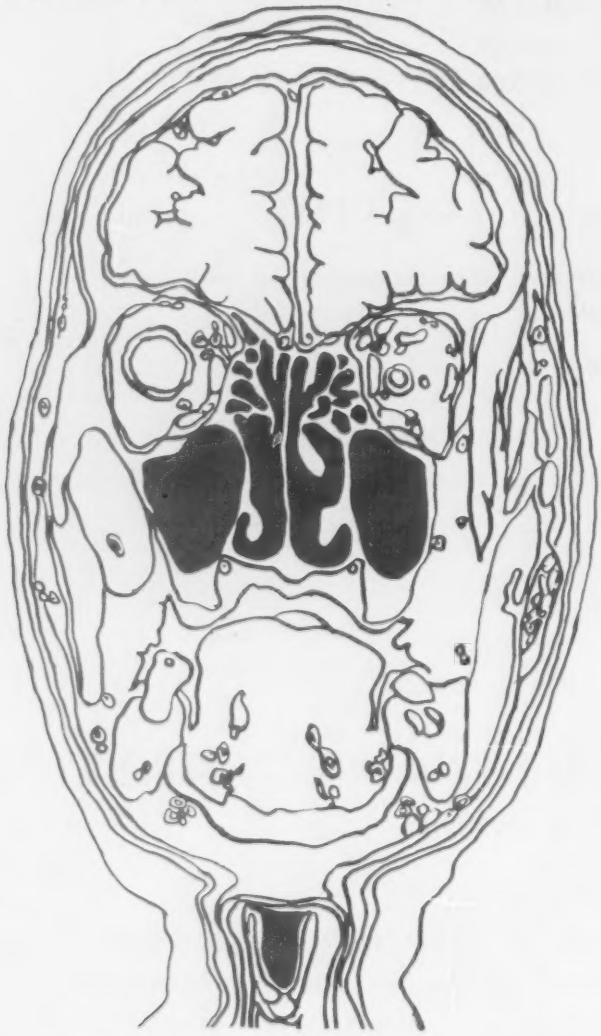
for acute
upper respiratory infections

Tetrex®

capsules

The Original Tetracycline Phosphate Complex U.S. PAT. NO. 2,791,609

effective control of pathogens...with an *unsurpassed record of safety and tolerance*



BRISTOL LABORATORIES, SYRACUSE, NEW YORK
Div. of Bristol-Myers Co.

BRISTOL™

SUPPLY: TETREX Capsules – tetracycline phosphate complex – each equivalent to 250 mg. tetracycline HCl activity. Bottles of 16 and 100.

TETREX Syrup – tetracycline (ammonium polyphosphate buffered) syrup – equivalent to 125 mg. tetracycline HCl activity per 5 ml. teaspoonful. Bottles of 2 fl. oz. and 1 pint.

Use of pHisoHex for washing the skin augments any other therapy for acne — brings better results. Now, pHisoAc Cream, a new acne remedy for topical application, suppresses and masks lesions — dries, peels and degerms the skin. Together, pHisoHex and pHisoAc provide **basic** complementary topical therapy for acne.

pHisoHex, antibacterial detergent with 3 per cent hexachlorophene, removes soil and oil better than soap — provides **continuous** degerming action when used often. pHisoHex is nonalkaline, nonirritating and hypoallergenic.

When pHisoAc Cream is used with pHisoHex washings, it unplugs follicles, helps prevent development of comedones, pustules and scarring. New pHisoAc Cream is flesh-toned, not greasy. It contains colloidal sulfur 6 per cent, resorcinol 1.5 per cent, and hexachlorophene 0.3 per cent in a specially prepared base. pHisoAc is pleasant to use.

A new "self-help" booklet, **Teen-aged? Have acne? Feel lonely?,** gives important **psychologic first aid** for patients with acne and describes the proper use of pHisoHex and pHisoAc. Ask your Winthrop representative for copies.

pHisoAc is available in 1½ oz. tubes and pHisoHex is available in 5 oz. plastic squeeze bottles and in bottles of 16 oz.

pHisoHex® and pHisoAc for acne

trademark

Winthrop LABORATORIES
New York 18, N. Y.

"...extraordinarily effective diuretic..."[1]

Efficacy and expanding clinical use are making Naturetin the diuretic of choice in edema and hypertension. It maintains a favorable urinary sodium-potassium excretion ratio, retains a balanced electrolyte pattern, and causes a relatively small increase in the urinary pH.[2] More potent than other diuretics, Naturetin usually provides 18-hour diuretic action with just a single 5 mg. tablet per day — economical, once-a-day dosage for the patient. Naturetin ē K — for added protection in those special conditions predisposing to hypokalemia and for patients on long-term therapy.

Supplied: Naturetin Tablets, 5 mg., scored, and 2.5 mg. Naturetin ē K (5 ē 500) Tablets, capsule-shaped, containing 5 mg. benzydroflumethiazide and 500 mg. potassium chloride. Naturetin ē K (2.5 ē 500) Tablets, capsule-shaped, containing 2.5 mg. benzydroflumethiazide and 500 mg. potassium chloride. For complete information consult package circular or write Professional Service Dept., Squibb, 745 Fifth Avenue, New York 22, N. Y.

References: 1. David, N. A.; Porter, G. A., and Gray, R. H.: Monographs on Therapy 5:60 (Feb.) 1960. 2. Ford, R. V.: Current Therap. Res. 2:92 (Mar.) 1960.

Naturetin Squibb Benzydroflumethiazide

Naturetin ē K Squibb Benzydroflumethiazide with Potassium Chloride

SQUIBB

"NATURETIN" IS A SQUIBB TRADEMARK.

the complaint: "nervous indigestion"

the diagnosis: any of several nonspecific and functional gastrointestinal disorders requiring relief of symptoms by sedative-antispasmodic action with concomitant digestive enzyme therapy.

the prescription: a new formulation incorporated in an enteric-coated tablet, providing the multiple actions of widely accepted Donnatal® and Entozyme.®

the dosage: two tablets three times a day, or as indicated.

in the gastric-soluble outer layer:

Hyoscyamine sulfate	0.0518 mg.
Atropine sulfate	0.0097 mg.
Hyoscine hydrobromide	0.0033 mg.
Phenobarbital (1/8 gr.)	8.1 mg.
Pepsin, N. F.	150 mg.

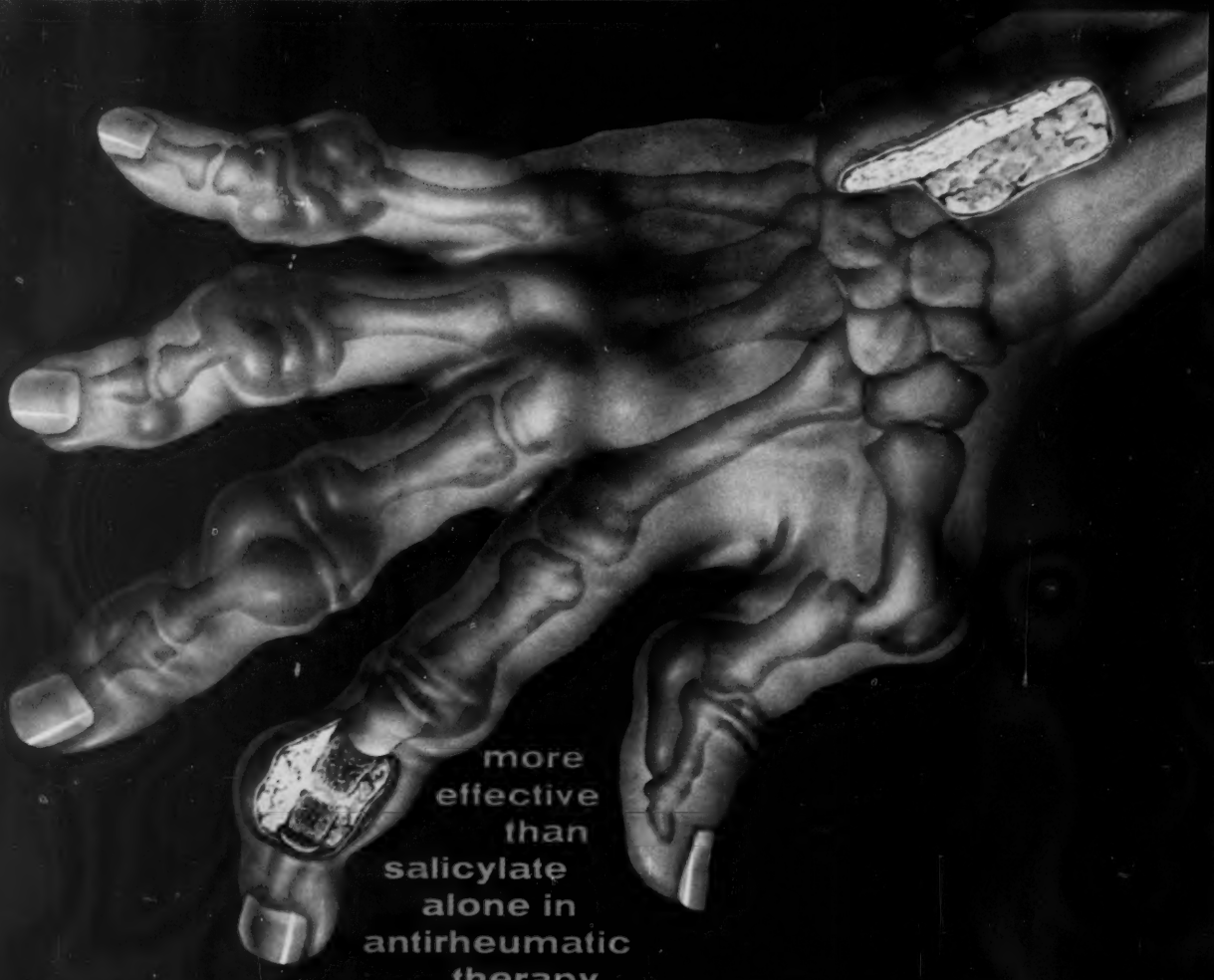
in the enteric-coated core:

Pancreatin, N. F.	300 mg.
Bile salts	150 mg.

antispasmodic • sedative • digestant

DONNAZYME®

A. H. ROBINS COMPANY, INCORPORATED • RICHMOND 20, VIRGINIA



more effective than salicylate alone in antirheumatic therapy

PABALATE®

Robins

COMBINING MUTUALLY SYNERGISTIC NON-STEROID ANTIRHEUMATICS

"superior to aspirin" — ". . . evidence seems to indicate that the concurrent administration of para-aminobenzoic and salicylic acid [as in Pabalate] produces a more uniformly sustained level for prolonged analgesia and, therefore, is superior to aspirin in the treatment of chronic rheumatic disorders."[1]

In each yellow enteric-coated PABALATE tablet:

Sodium salicylate (5 gr.)	0.3 Gm.
Sodium para-aminobenzoate (5 gr.)	0.3 Gm.
Ascorbic acid	50.0 mg.

For the patient who should avoid sodium

PABALATE®-SODIUM FREE

Same formula as Pabalate, with sodium salts replaced by potassium salts (pink)

For the patient who requires steroids

PABALATE®-HC

Pabalate with Hydrocortisone

In each light blue enteric-coated PABALATE-HC tablet:

Hydrocortisone	2.5 mg.
Potassium salicylate (5 gr.)	0.3 Gm.
Potassium para-aminobenzoate (5 gr.)	0.3 Gm.
Ascorbic acid	50.0 mg.

1. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

A. H. ROBINS CO., INC., Richmond 20, Virginia

in common Gram-positive infections due to susceptible organisms YOU CAN COUNT ON

TAO®*

(triacetyloleandomycin)

even in many resistant Staph*

1,928 published cases in the two years since TAO was released for general use show:

94.3% effectiveness in respiratory infections (617 cases including tonsillitis, staphylococcal and streptococcal pharyngitis, bronchitis, infectious asthma, broncho-pneumonia, lobar pneumonia, bronchiectasis, lung abscess, otitis.) **You can count on TAO.**

92% effectiveness in skin and soft tissue infections (900 cases including pyoderma, impetigo, acne, infected skin disorders, wounds, incisions and burns, furunculosis, abscess, cellulitis, chronic ulcer, adenitis.) **You can count on TAO.**

87.1% effectiveness in genitourinary infections (349 cases including urethritis, cystitis, pyelitis, pyelonephritis, orchitis, pelvic inflammation, acute gonococcal urethritis, lymphogranuloma venereum.) **You can count on TAO.**

75.8% effectiveness in diverse infections (62 cases including fever of undetermined origin, peritoneal abscess, osteitis, periarthritis, septic arthritis, staphylococcal enterocolitis, gastroenteritis, carriers of staphylococci.) **You can count on TAO.**

95.6% of 1,928 cases free of side effects—in the remaining 4.4%, reactions were chiefly mild gastrointestinal disturbances which seldom necessitated discontinuance of therapy.

*In 884 of 1,928 cases the causative organisms were mostly staphylococci. The majority of clinical isolates were found to be resistant to at least one of the commonly used antibiotics and many patients had failed to respond to previous therapy with one or more antibiotics. **TAO proved 93.4% effective in these 884 cases.**

Complete bibliography available on request.

DOSAGE: varies according to severity of infection. Usual adult dose—250 to 500 mg. q.i.d. Usual pediatric dose: 3-5 mg./lb. body weight every 6 hours.

NOTE: In some children, when TAO was administered at considerably higher than therapeutic levels for extended periods, transient-jaundice and other indications of liver dysfunction have been noted. A rapid and complete return to normal occurred when TAO was withdrawn.

SUPPLY: TAO CAPSULES—250 mg. and 125 mg., bottles of 60. TAO ORAL SUSPENSION—125 mg. per 5 cc. when reconstituted, palatable cherry flavor, 60 cc. bottles. TAO PEDIATRIC DROPS—100 mg. per cc. when reconstituted, flavorful; special calibrated dropper, 10 cc. bottles. INTRAMUSCULAR or INTRAVENOUS—10 cc. vials, as oleandomycin phosphate.

OTHER TAO FORMULATIONS ALSO AVAILABLE: TAO®-AC (Tao, analgesic, antihistaminic compound) capsules, bottles of 36. TAOMID® (Tao with Triple Sulfas)—tablets, bottles of 60. Oral Suspension—60 cc. bottles.

For nutritional support VITERRA® Vitamins and Minerals
Formulated from Pfizer's line of fine pharmaceutical products.

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Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being™

How to be Carefree Without Hardly Trying . . .

It really takes a load off your mind. . . to know that you are protected from loss of income due to illness or accident'

"Dr. Carefree" has no 30-day sick leave . . . no Workmen's Compensation . . . BUT he has a modern emergency INCOME PROTECTION PLAN with Mutual of Omaha.

When he is totally disabled by accident or sickness covered by this plan, this plan will give him emergency income, free of Federal income tax, eliminating the nightmare caused by a long disability.

Thousands of members of the Medical Profession are protected with Mutual of Omaha's PROFESSIONAL MEN'S PLAN, especially designed to meet the needs of the profession.

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WHEN ORAL PENICILLIN THERAPY IS INDICATED....

K-CILLIN

K-CILLIN-500
TABLETS

Composition: Compressed tablets of Penicillin G Potassium, buffered with Calcium Carbonate. Each tablet contains 500,000 units of crystalline Penicillin G Potassium.

Uses: In mild or moderately severe Gram-positive infections and especially penicillin-resistant staphylococcic infections. Usually well tolerated with few if any side effects.

Dosage: One tablet every four to six hours.

Caution: Federal law prohibits dispensing without prescription.

Supplied: Bottles of 100 and 1000.
Also Available **K-CILLIN 250** — As above except each tablet contains 250,000 units crystalline Penicillin G Potassium.

References: Drugs of Choice: W. Modell, M.D., 1959; Pg. 131, 132.

K-CILLIN-500
for SYRUP

Composition: Crystalline Penicillin G Potassium powder, buffered with Sodium Citrate. When dispensed, add 39 cc. water. Resulting red solution will contain 500,000 units Penicillin G Potassium in each teaspoonful (5cc.). Solution will keep one week under refrigeration. Dry powder dated.

Dosage: One teaspoonful every six hours. NOT FOR INJECTION. **Caution:** Federal law prohibits dispensing without prescription.

Supplied: 60 cc. Bottles.

References: Drugs, Their Nature, Action and Use; H. Beckman, M.D., 1958; Pg. 502, 504, 505.

LITERATURE and CATALOG ON REQUEST

Mayrand, INC.
PHARMACEUTICALS

1042 WESTSIDE DRIVE
GREENSBORO, N. C.

AN AMES CLINIQUICK®
CLINICAL BRIEFS FOR MODERN PRACTICE

A urine culture is absolutely essential in the diabetic suspected of having a urinary tract infection since such infection is not always accompanied by pyuria. It is also essential to keep the urine free from sugar—as shown by frequent urine-sugar tests—for successful therapy.

Source: Harrison, T. R., *et al.*: Principles of Internal Medicine, ed. 3, New York, McGraw-Hill Book Co., 1958, p. 620.

the most effective method of routine testing for glycosuria...
color-calibrated

CLINITEST®
BRAND *Reagent Tablets*

the *standardized* urine-sugar test for reliable quantitative estimations

Urinary tract infections are about four times more frequent in the diabetic than in the non-diabetic. The prevention and treatment of urinary tract infections, as well as the avoidance of other complications of diabetes, are significantly more effective in the well-controlled diabetic. The patient should be impressed repeatedly with the importance of continued daily urine-sugar testing—especially during intercurrent illness—and warned of the consequences of relaxed vigilance.

"urine-sugar profile" With the new *Graphic Analysis Record* included in the CLINITEST Urine-Sugar Analysis Set (and in the tablet refills), daily urine-sugar readings may be recorded to form a graphic portrayal of glucose excretion most useful in clinical control. 8446-0

- *motivates patient cooperation* through everyday use of Analysis Record
- *reveals at a glance day-to-day trends* and degree of control
- *provides a standardized color scale* with a complete range in the familiar blue-to-orange spectrum

AMES
COMPANY, INC
Elkhart • Indiana
Toronto • Canada

guard against ketoacidosis
...test for ketonuria
for patient and physician use

ADDED SAFETY FOR DIABETIC CHILDREN
ACETEST® *Reagent Tablets*
KETOSTIX® *Reagent Strips*

IN SENILE CONFUSION . . .

CONTINUOUS CEREBRAL OXYGENATION

WITH

ONE

Geroniazol TT* b.i.d.

- Each Geroniazol TT tablet contains:
  Pentylenetetrazol .....300 mg.
  Nicotinic Acid .....150 mg.
- Indications: Respiratory and circulatory stimulant for the aged and debilitated patient with symptoms of mental confusion, depression or atherosclerotic psychosis.
- Supplied: Bottles of 42 Tablets (3 weeks' treatment)
  * TEMPOTROL (Time Controlled Therapy)

COLUMBUS PHARMACAL COMPANY
Columbus 16, Ohio

RELIEVE ALL COMMON COLD SYMPTOMS AT ONCE

WITH

'EMPRAZIL'®

THE TOTAL COLD-THERAPY TABLET

nasal decongestant · analgesic antipyretic · antihistamine

The ingredients combined in each 'Emprazil' tablet provide multiple drug action for prompt symptomatic relief of aches, pains, fever and respiratory congestion—due to common colds, flu or grippe—without gastric irritation.

Dosage: Adults and older children—One or two tablets t.i.d. as required. Children 6 to 12 years of age—One tablet t.i.d. as required.

Supplied: Bottles of 100 or 1000

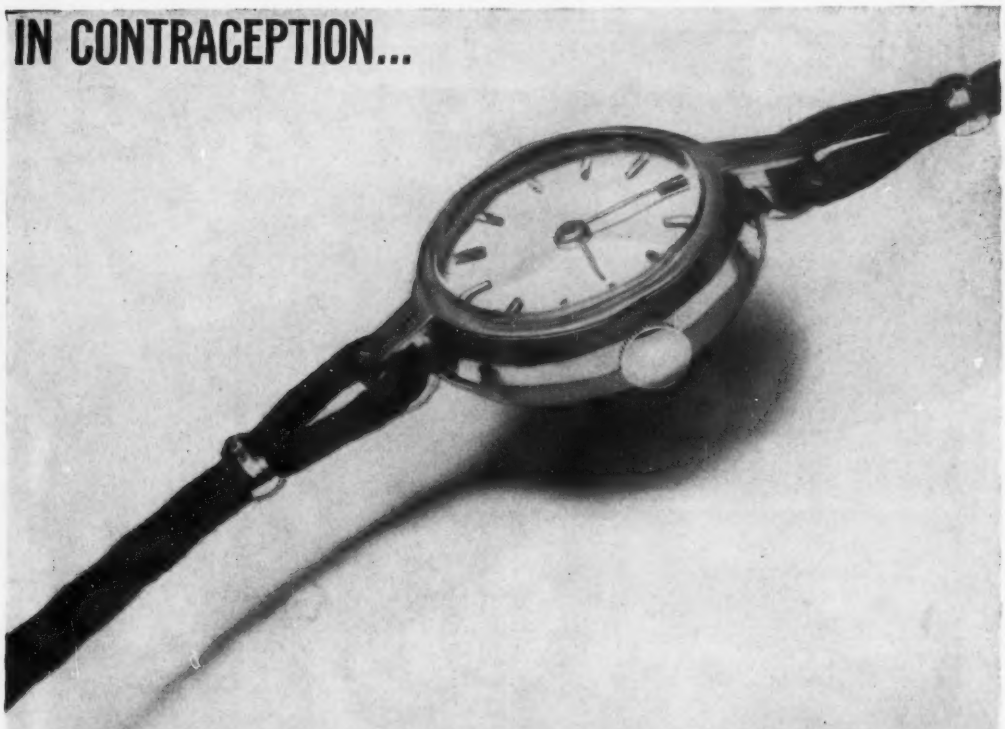
Each orange and yellow layered tablet contains:

'Sudafed'® brand Pseudoephedrine Hydrochloride	20 mg.
'Perazil'® brand Chlorcyclizine Hydrochloride	15 mg.
Acetophenetidin	150 mg.
Aspirin (Acetylsalicylic Acid)	200 mg.
Caffeine	30 mg.

Complete literature available on request.

BURROUGHS WELLCOME & CO.
(U.S.A.) INC., Tuckahoe, N. Y.

IN CONTRACEPTION...



WHY IS SPEEDIER SPERMICIDAL ACTION IMPORTANT?

Because a swift-acting spermicide best meets the variables of spermatozoan activity.

Lanesta Gel, "...found to immobilize human spermatozoa in one-third to one-eighth the time required by five of the leading contraceptive products currently available . . ."* thus provides the *extra* margin of assurance in conception control. The accelerated action of Lanesta Gel — it kills sperm in minutes instead of hours — may well mean the difference between success and failure.

**Berberian, D. A., and Slighter, R. G.: J.A.M.A.* 168:2257 *(Dec. 27) 1958.*

In Lanesta Gel *7-chloro-4-indanol,* a new, effective, nonirritating, nonallergenic spermicide produces immediate immobilization of spermatozoa in dilution of up to 1:4,000. Spermicidal action is greatly accelerated by the addition of 10% NaCl in ionic form. Ricinoleic acid facilitates the rapid inactivation and immobilization of spermatozoa and sodium lauryl sulfate acts as a dispersing agent and spermicidal detergent.

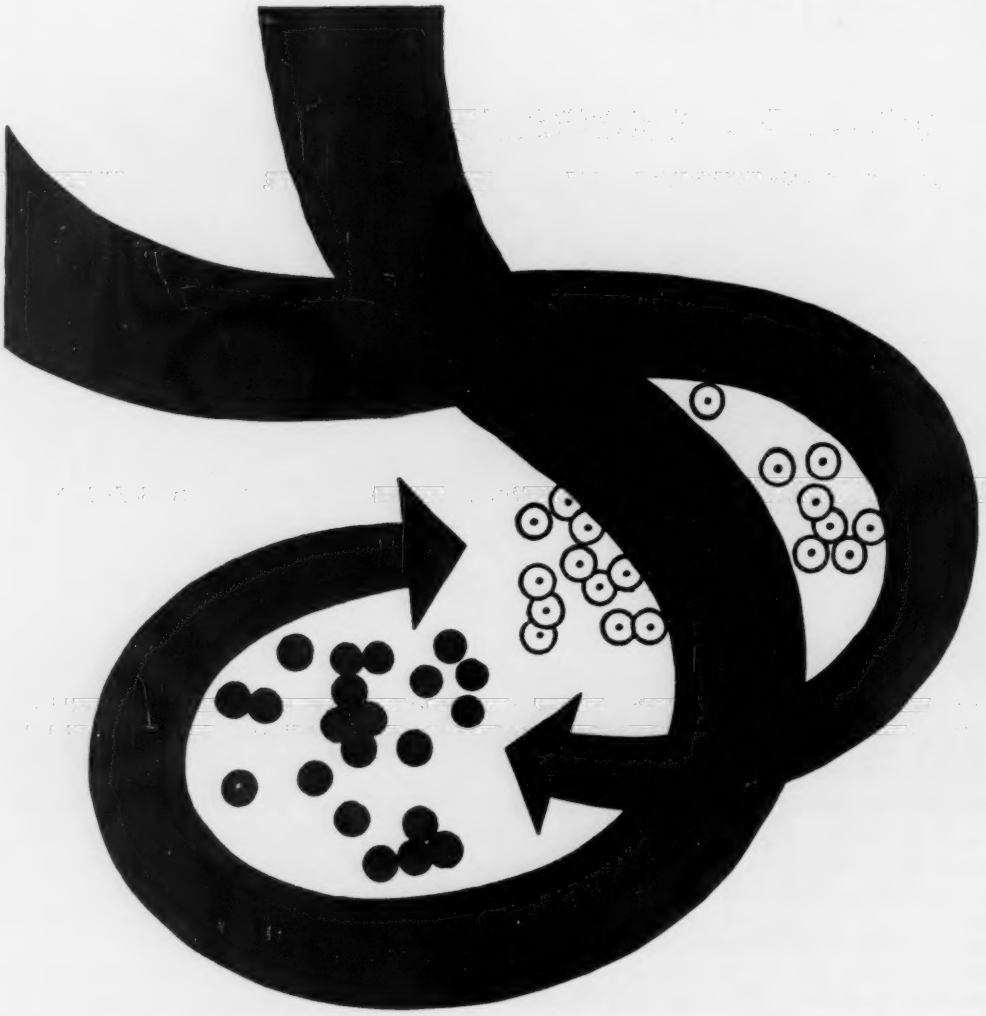
Lanesta Gel with a diaphragm provides one of the most effective means of conception control. However, whether used with or without a diaphragm, the patient and you, doctor, can be certain that Lanesta Gel provides faster spermicidal action — plus essential diffusion and retention of the spermicidal agents in a position where they can act upon the spermatozoa.

new Lanesta® Gel

Supplied: Lanesta Exquiset . . . with diaphragm of prescribed size and type; universal introducer; Lanesta Gel, 3 oz. tube, with easy clean applicator, in an attractive purse. Lanesta Gel, 3 oz. tube with applicator; 3 oz. refill tube — available at all pharmacies.

Manufactured by Esta Medical Laboratories, Inc., Alliance, Ohio Distributed by GEORGE A. BREON & CO., New York 18, N. Y.

A product of Lanteen® research



Now...the only Nystatin combination with extra-active DECLOMYCIN®
Demethylchlortetracycline

with extra-broad spectrum benefits:— action at lower milligram intake...broad-range action...sustained peak activity... extra-day security against resurgence of primary infection or secondary invasion.

DECLOSTATIN®

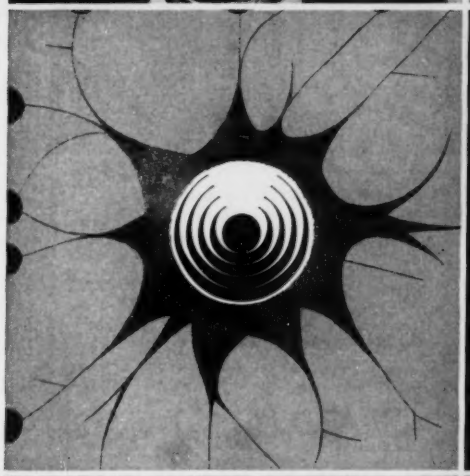
Demethylchlortetracycline and Nystatin LEDERLE

CAPSULES, *150 mg. DECLOMYCIN Demethylchlortetracycline HCl and 250,000 units Nystatin.*
DOSAGE: *average adult, 1 capsule four times daily.*

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

whenever depression complicates the picture

Tofrānil®
brand of imipramine HCl



hastens recovery

Geigy

In many seemingly mild physical disorders an element of depression plays an insidious etiologic or complicating role.

Because of its efficacy as an antidepressant, coupled with its simplicity of usage, Tofrānil is admirably adapted to use in the home or office in these milder "depression-complicated" cases.

It is always wise to recognize that depression may be an underlying factor... that Tofrānil may speed recovery in "hypochondriasis"; in convalescence when recovery is inexplicably prolonged; in chronic illness with dejection; in the menopausal patient whose emotional disturbances resist hormone therapy; and in many other comparable situations in which latent depression may play a part.

Detailed Literature Available on Request

Tofrānil®, brand of imipramine hydrochloride, tablets of 25 mg. Ampuls for intramuscular administration, 25 mg. in 2 cc. of solution.

Geigy, Ardsley, New York

160-60

REGULATORS

"Essential" fatty acids . . . arachidonic and linoleic . . . and fat-soluble vitamins . . . A, D and K . . . can be obtained from everyday foods. These nutrients serve essential but obscure roles in maintenance of body membranes and skin. Intestinal absorption of calcium, mineralization of bone and teeth, and clotting of blood.

From foods listed in *A Guide to Good Eating*, the "essential" fatty acids are obtained from the fat present in milk, cheese, ice cream, butter, eggs, meat, fish, poultry, nuts . . . and in larger amounts, from some natural fats and oils used in food preparation and at table. Vitamin A value is generously supplied by milk fat in dairy foods, eggs, dark green leafy vegetables, yellow vegetables and fruits.

Vitamin D . . . important for absorption and utilization of calcium during growth, pregnancy and lactation . . . is not amply provided by foods listed in the "Guide" . . . unless vitamin D-fortified milk is used in recommended amounts. Vitamin D can be formed in the skin if it is exposed to sunlight or ultraviolet lamp.

Many foods listed in the "Guide" supply vitamins E and K . . . i. e. green leafy vegetables, nuts and dairy foods containing milkfat. Plant oils used for salads or food preparation are rich in vitamin E. Microorganisms form vitamin K in the intestines.

A GUIDE TO GOOD EATING — USE DAILY

DAIRY FOODS

3 to 4 glasses milk—children • 4 or more glasses—teenagers • 2 or more glasses—adults • Cheese, ice cream and other milk-made foods can supply part of the milk

MEAT GROUP

2 or more servings • Meats, fish, poultry, eggs, or cheese—with dry beans, peas, nuts as alternates

VEGETABLES AND FRUITS

4 or more servings • Include dark green or yellow vegetables; citrus fruit or tomatoes

BREADS AND CEREALS

4 or more servings • Enriched or whole-grain added milk improves nutritional values

When combined in well-prepared meals, foods selected from each of the four food groups can provide all of the necessary fat-soluble vitamins and fatty acids . . . while satisfying the tastes, appetites and other nutrients needs of all members of the family . . . young and old.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Since 1915 . . . promoting better health through nutrition research and education.

NATIONAL DAIRY COUNCIL
A non-profit organization
111 N. Canal Street • Chicago 6, Ill.

Salute to the American Dental Association on A Century of Health Service

This information is reproduced in the interest of good nutrition and health by the Dairy Council Units in North Carolina.

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Winston-Salem, N. C.

Burlington-Durham-Raleigh
310 Health Center Bldg.
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For the Best Years of Their Lives

NICOZOL® COMPLEX

ORIGINAL FORMULA

Ideal New Geriatric Tonic Stimulant

NICOZOL COMPLEX is a cerebral stimulant-tonic and dietary supplement intended for geriatric use. Improves mental and physical well-being. Improves protein and calcium metabolism. Indicated during convalescence, also as a preventive agent in common degenerative changes.

Dosage:

1 teaspoonful (5 cc) 3 times a day, preferably before meals. Female patients should follow each 21-day course with a 7-day rest interval.

Supply:

NICOZOL COMPLEX is available as a pleasant-tasting elixir. Popularly priced. Bottles of 1 pint and 1 gallon.

Formula

Each 15 cc (3 teaspoonfuls) contains:

Pentylenetetrazol	150 mg.
Niacin	75 mg.
Methyl Testosterone	2.5 mg.
Ethinyl Estradiol	0.02 mg.
Thiamine Hydrochloride	6 mg.
Riboflavin	3 mg.
Pyridoxine Hydrochloride	6 mg.
Vitamin B-12	2 mcg.
Folic Acid	0.33 mg.
Panthenol	5 mg.
Choline Bitartrate	20 mg.
Inositol	15 mg.
l-Lysine Monohydrochloride	100 mg.
Vitamin E (a-Tocopherol Acetate)	3 mg.
Iron (as Ferric Pyrophosphate)	15 mg.

Trace Minerals as: Iodine 0.05 mg., Magnesium 2 mg., Manganese 1 mg., Cobalt 0.1 mg., Zinc 1 mg.

Contains 15% Alcohol

Write for professional sample and literature.

DRUG Specialties INC. WINSTON-SALEM 1, NORTH CAROLINA

REFER TO PDR

IN COLDS AND SINUSITIS— THE RIGHT AMOUNT OF "INNER SPACE" RIGHT AWAY

Neo-Synephrine hydrochloride relieves the boggy feeling of colds immediately and safely, without causing systemic toxicity or chemical harm to nasal membranes. Turbinates shrink, sinus ostia open, ventilation and drainage resume, and mouth-breathing is no longer necessary.

Gentle Neo-Synephrine shrinks nasal membranes for from two to three hours without stinging or harming delicate respiratory tissues. Post-therapeutic turgescence is minimal. Neo-Synephrine does not lose its effectiveness with repeated applications nor does it cause central nervous stimulation, jitters, insomnia or tachycardia.

Neo-Synephrine solutions and sprays produce shrinkage of tissue without interfering with ciliary activity or the protective mucous blanket.

For wide latitude of effective and safe treatment, Neo-Synephrine hydrochloride is available in nasal sprays for adults and children; in solutions from ⅛% to 1%; and in aromatic solution and water soluble jelly.

Winthrop LABORATORIES
New York 18, N. Y.

NEO-SYNEPHRINE®
(Brand of phenylephrine hydrochloride)
hydrochloride
NASAL SOLUTIONS AND SPRAYS

BETTER GET YOURS FIRST DOCTOR!

Money goes fast at Christmas time, Doctor . . . best you start getting yours now.

And one of the best ways to get your money before December spending starts, is to call the Medical-Dental Credit Bureau nearest you today. They'll clear up your overdue accounts . . . in an ethical, courteous manner . . . and keep your patients happy, too.

Yes, to beat those December charge accounts to the draw, call your Medical-Dental Credit Bureau NOW!

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Winston-Salem—514 Nissen Building—PArk 4-8373
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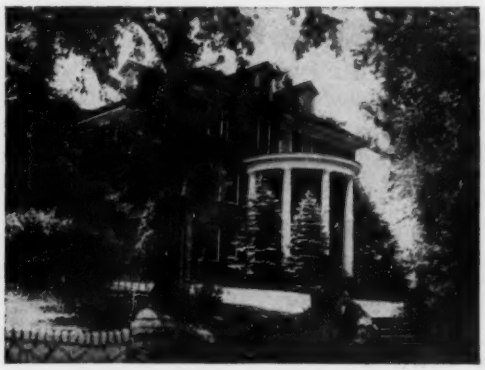

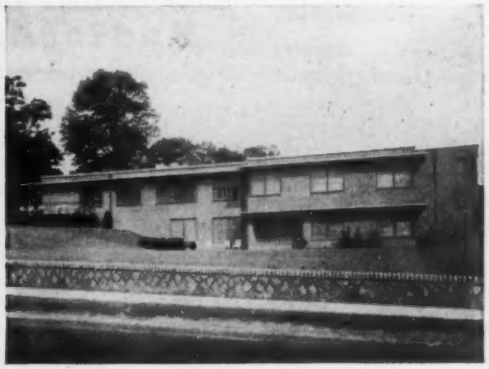

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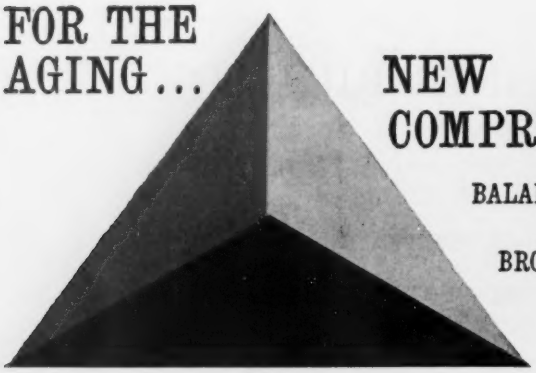

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References:

1. Shapleigh, J. B.: Ferrous Fumarate, A Clinical Trial of A New Iron Compound, Am. Pract. Dig. Treat.; March, 1959.
2. Feldman, Harold S.: Ferrous Fumarate in the Treatment of Iron Deficiency Anemia, Va. Med. Monthly, Vol. 87, April, 1960.
3. Lancet (editorial) 2: 923, 1953.
4. Quart. J. Med. 22:309, 1953 and Blood 7:671, 1952.

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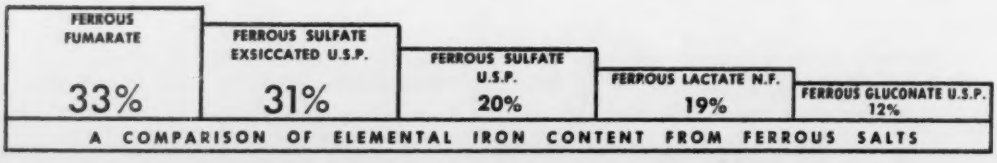

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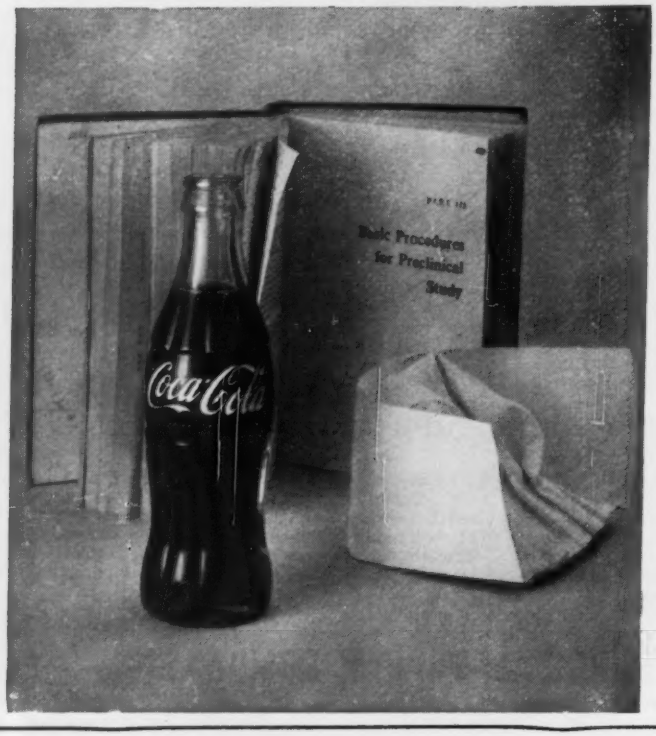

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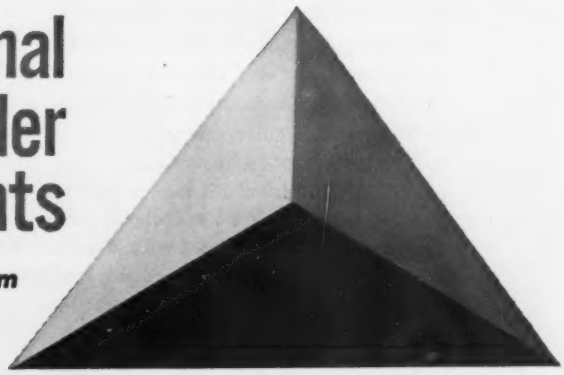

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References: (1) Goodier, T. E. W., & Parry, W. R.: *Lancet* 1:356, 1959. (2) Modarress, Y.; Ryan, R. J., & Francis, Sr. C.: *J. M. Soc. New Jersey* 57:168, 1960. (3) Petersdorf, R. G., *et al.*: *Arch. Int. Med.* 105:398, 1960. (4) Rebhan, A. W., & Edwards, H. E.: *Canad. M.A.J.* 82:513, 1960. (5) Bauer, A. W.; Perry, D. M., & Kirby, W. M. M.: *J.A.M.A.* 173:475, 1960. (6) Olarte, J., & de la Torre, J. A.: *Am. J. Trop. Med.* 8:324, 1959. (7) Berle, B. B., *et al.*: *New York J. Med.* 59:2383, 1959. (8) Fisher, M. W.: *Arch. Int. Med.* 105:413, 1960.

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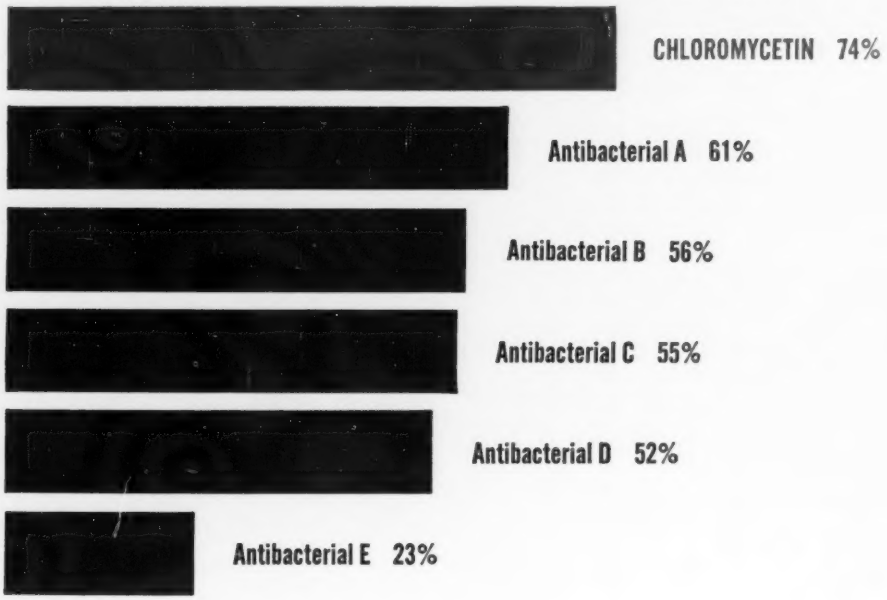

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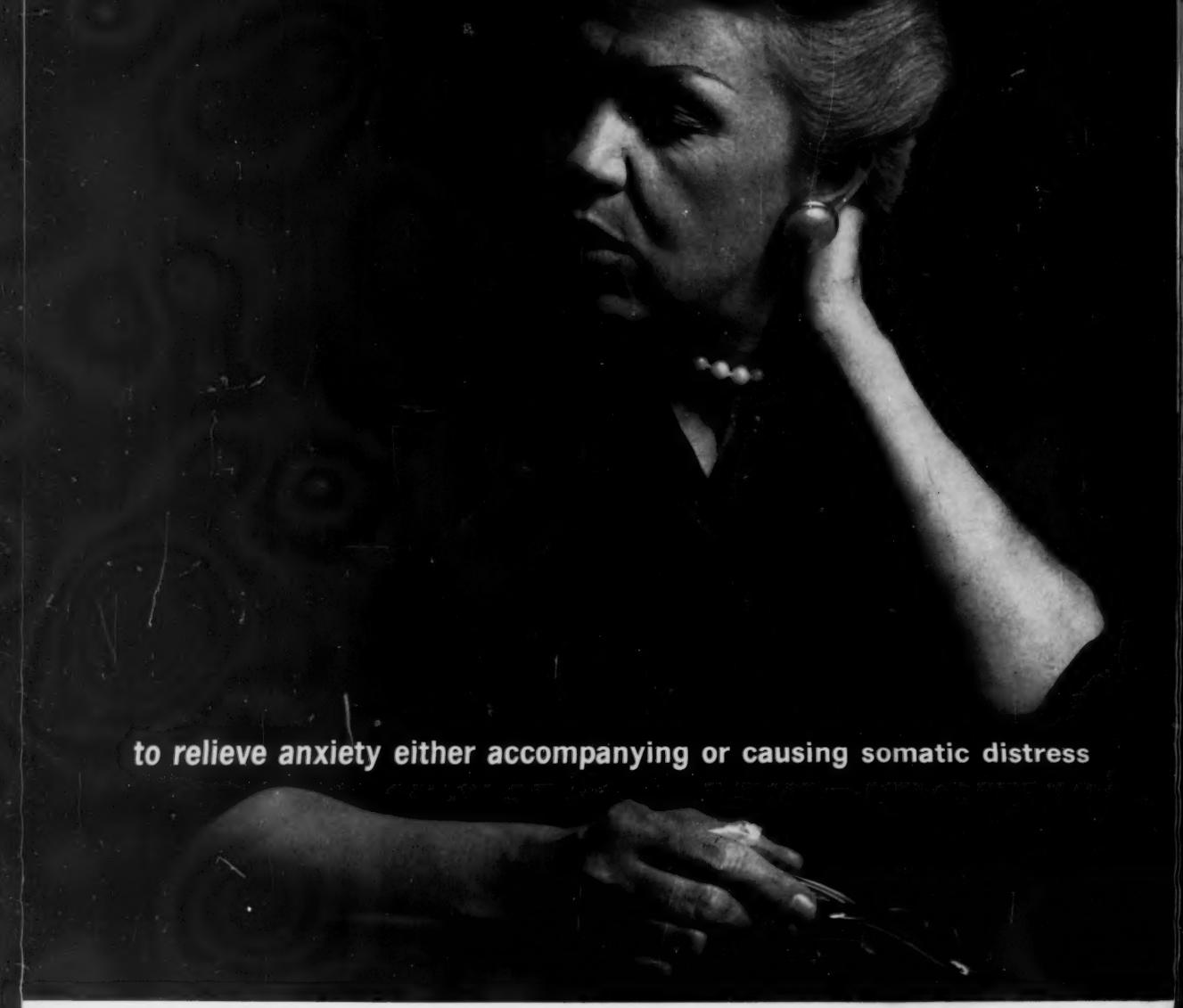

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1. Marx, F.J., in *Trifluoperazine: Further Clinical and Laboratory Studies*, Philadelphia, Lea & Febiger, 1959, p. 89.
2. Winkelman, N.W., Jr.: *ibid.*, p. 78.

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